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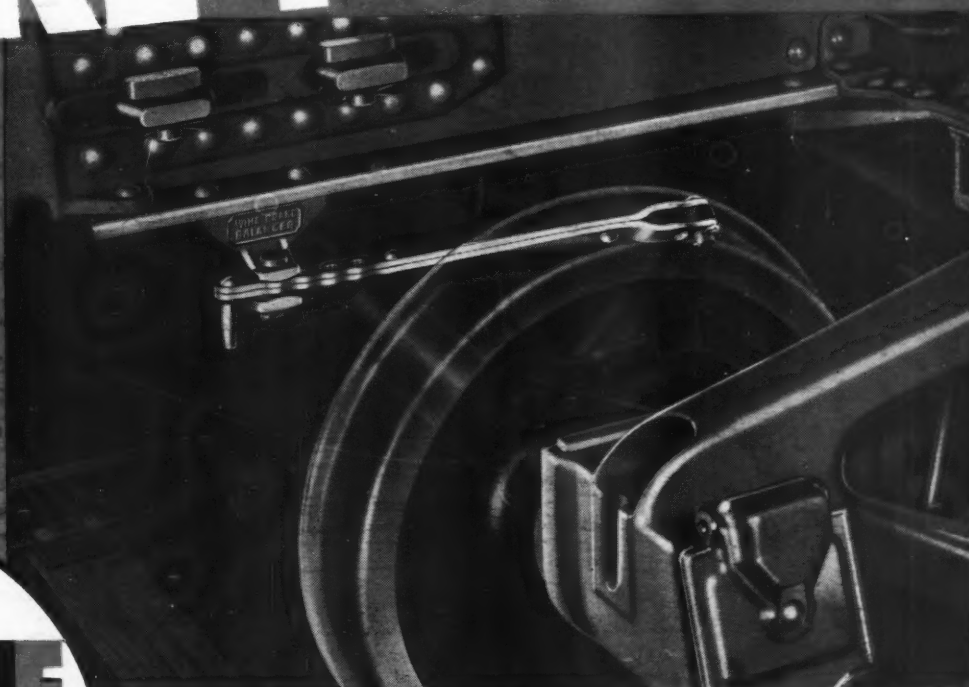
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Railway Age

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BRAKE BALANCER

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Of these:

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This IS Salvaging Scrap for the War Effort!

*Secured with the cooperation of W.P.B.

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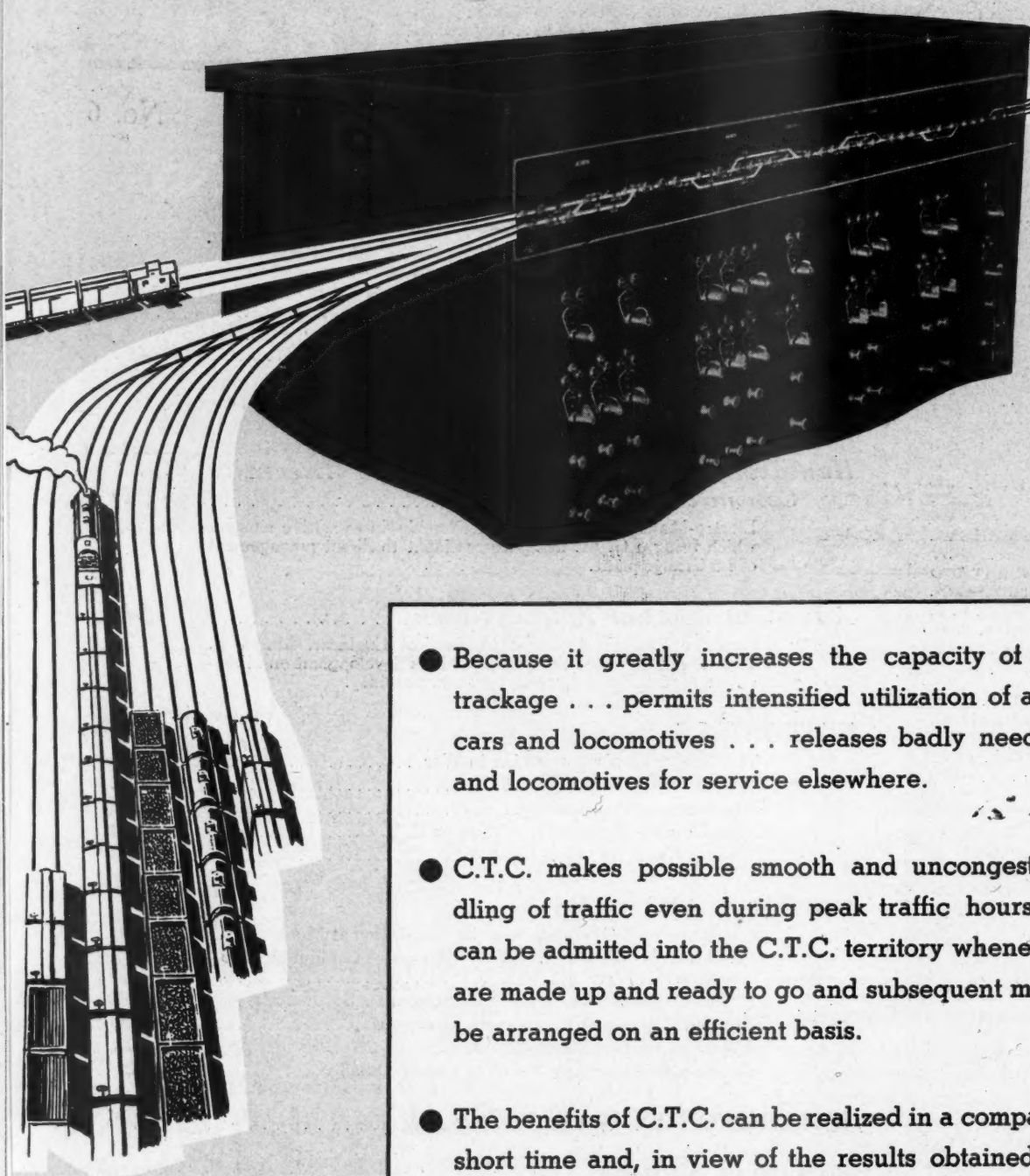
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The Week at a Glance

BARGE LINE'S PURPOSE: The government itself—as a shipper and a receiver of freight—prefers the fast, flexible, all-season service of the railroads to that of the government-owned barge line. Result: In 1942 the barge line had a loss of traffic, while railroad ton-miles increased 34 per cent. This barge line was initiated allegedly to “relieve” the railroads—but that is not and never has been its real purpose, as is proved by its decline in business at the only time in 20 years that the railroads actually need such relief. Instead, as the leading editorial herein suggests, recent events complete the proof of the barge line's *actual function*, which is to reduce rates for favored shippers—most of them “big business,” hauling their own merchandise in their own vessels. The taxpayers pay the costs of canalized rivers, but they get none of the “benefits.” The industrial users charge their customers the same prices as if the goods moved by rail, and pocket the difference.

TIME-SAVING SIGNALS: Under ordinary C. T. C. practice, a train in a siding does not get a signal to permit it to follow, immediately, a train which has passed in the same direction. Instead, the train in the passing track has to wait until the first train has cleared the first block beyond the siding before a yellow light is displayed permitting the train in the siding to proceed. The Nickel Plate has an installation which permits elimination of this delay—as an editorial herein relates. It consists of a leave-siding dwarf signal which can be lever-controlled to display yellow at once—and with ample safeguards.

WOOD FLOORS UNWISE?: The W. P. B. requires defective floors in steel open-top cars to be replaced by wooden flooring—theorizing thereby that precious steel is saved. An editorial herein suggests that the steel saving is inconsequential—considering structural changes necessary to accommodate the *ersatz* flooring. Meantime, the application of a wooden floor is enormously wasteful of manpower, which is at least as scarce as steel is. Why, the editorial asks, try to save a very little steel by an excessive use of labor. It is like a fellow who would pay a man a dollar to dive for a quarter he had dropped in the river.

IS RESEARCH PRACTICAL?: “Theorists” generally are not highly regarded by “practical” men—and they are quite right, that is, when “theorists” are in jobs where plenty of ready action is required. An editorial herein suggests, however, that the “theorists”—the “planners”—have their proper place in every enterprise. For example, if leaders of business in the 'Twenties had been a little more “theoretical” (that is, not so busy acting that they could not take time out to think), they might not have let their affairs drift

into the condition which brought on the New Deal. Similarly, how serious would problems of the railroads be today if a research committee such as that headed by Judge Fletcher for the A. A. R. (and similar activities by individual railroads) had been begun twenty years ago? In the current fitting disrespect which “theorizers” have aroused in government jobs where executive ability is the primary need—it is well not to overlook the fact that probers of future prospects have their proper and necessary function. An editorial in this issue suggests that the railroads can travel this road a long way before they will be in danger of overbalance on the “impractical” side.

COMPETE FOR SECURITIES?: The I. C. C. last week approved the sale by the Pennsylvania to Kuhn, Loeb & Co. of an issue of bonds without competitive bids. Then, the next day, in response to vigorous objection of a couple of financial houses, it rescinded its approval pending further deliberation. In the meantime, however, P. R. R. had already completed the transaction with Kuhn, Loeb. Now, the Commission has decided to undertake a general investigation of this whole controversial subject—whether it should require competitive bids and, if so, to what classes of securities this stipulation should be attached.

POSTWAR ROLLING STOCK: Assistant Mechanical Engineer Morris Taylor of the Southern Pacific in a paper reported elsewhere in these pages, surveys the technical innovations and developments which appear most likely to appear in railroad equipment—to enable the carriers to improve the convenience and economy of their public service, and hence to keep the railroad industry flourishing. Mr. Taylor is particularly interested in post-war fuel prospects, and the bearing which these may have on the several categories of power; he also reviews the outlook for the use of new materials in producing more serviceable and economical car equipment.

TAKING TO THE AIR?: The Frisco has added itself to the growing list of railroads which are preparing, if political authorities will permit, to expand their operations to include airplane service, after the war. Meantime, one or two officials of existing airlines have expressed great perturbation lest the railroads be allowed partially to dispel the so-far air-tight monopoly which the airlines enjoy in the territories they now serve. The strategy adopted by these objectors is the familiar one of accusing the railroads of these airline operators' own intentions, viz., the desire to monopolize. It is something like Henry Wallace vainly anathematizing his opponents as “fascists” and “totalitarians,” that is, accusing them falsely of objectives which he obviously entertains for himself and his followers.

JUNE INCOME OFF: The full impact of the reduction in freight rates, effective the middle of May, hit railroad earnings in June. In that month, net railway operating income was 110 million dollars—about 7½ per cent less than in June, 1942—although gross revenues were almost 20 per cent higher than they were in June last year.

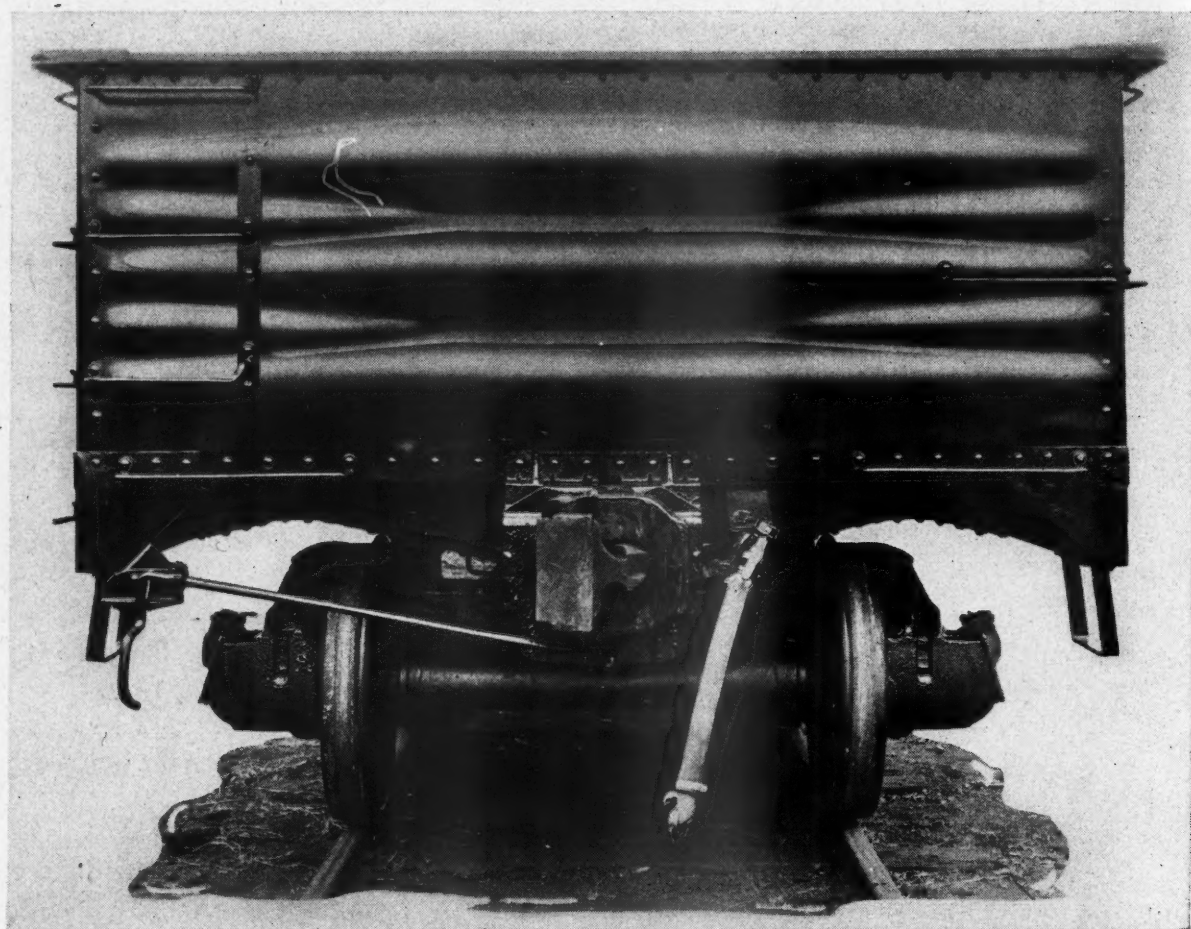
MONTREAL TERMINAL: The second and concluding part of a comprehensive illustrated description of the Canadian National's modern central passenger station in the Dominion's metropolis appears in this issue, the first installment of the report having been published last week. This installation is remarkable, not only from its magnitude and convenience—but because it represents a double achievement by its designers, being their answer to the requirement, after construction of the project had already begun, of cutting practically in half the outlay originally planned, while at the same time conserving the features necessary to make the structure fulfill its essential functions.

NO MORE SMALL CHECKS: When the Southern Railway owes somebody less than a dollar, the payee gets his money in cash—and no longer by a voucher which costs the carrier a dollar or more to issue, besides the burden it puts on scarce manpower in the banks as well as on the railroads. The system adopted for making these small disbursements is reported in a short article in this issue.

STRIKE THREAT: The railway union leaders have done considerable talking about their “no strike” pledge—but what they apparently meant was that they were unalterably opposed to strikes so long as they could get everything they went out for without striking. At any rate, these no-strike talkers from the non-op unions were in session at Washington this week, preparing to issue a strike vote unless some face-saving compromise could be contrived and agreed to by government officials to give them what they want. The railroads are in the role of “innocent bystander” in this case, because they have no power to pay more money than properly-designated federal officials tell them to pay. And yet, if a strike comes or is even seriously threatened, the orthodox government remedy is to take over the afflicted industry—an outcome which, in the case of the railroads, would be a “national calamity,” in the considered opinion of informed Army transportation officers.

CONDENSATION IN CARS: The liquefaction of moisture in cars, with attendant damage to lading, is a costly nuisance which a contrivance, described herein, is designed to eliminate. Tests of the device, which are reported with our description, indicate that it will do the job assigned to it.

**TO KEEP CARS IN SERVICE
AND MAINTENANCE COSTS AT MINIMUM
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**CUSHION SHOCKS DUE TO SHIFTING LOADS
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RAILWAY AGE

The Government's Barge Line in War

The government's failure to use its own barge line on the Ohio-Mississippi river system during World War II is highly significant. The barge line was established during World War I especially to "relieve" the railways, but also to enable government operation to demonstrate that private operation of barge lines on inland waterways could be made successful. It is operated by the government's Inland Waterways Corporation, the recently issued report of which shows that its traffic declined 12 per cent in 1942. Consequently, its gross earnings declined from \$8,307,000 in 1941 to \$7,504,000 in 1942, and its operating deficit increased from \$191,000 to \$798,000.

There was plenty of freight available. The number of tons carried one mile by the railways was 34 per cent greater in 1942 than in 1941. Chester C. Thompson, president of the barge line, complains in his report that it and other water carriers by river and canal have not been called on or permitted to be of the wartime service possible with their organizations and facilities. Who is responsible for that? The government has been during the war a bigger shipper than all other shippers combined. The Army, Navy and other government departments could have routed vastly more freight via inland waterways than they could have handled. Why have government departments reduced instead of increased shipments by the barge line owned and operated by the government itself, when they could have got lower rates by using the barge line, and when the railways really have needed the "relief" it was ostensibly established to provide?

The answer is plain. First, the barge line's capacity is so small that the amount of "relief" it could have given the railways in handling the vast traffic recently available would have been negligible. Second, the government departments desire during the war the fast, reliable service the railways give and the barge line cannot.

It is mere pretense that inland waterways have been developed, and the government's barge line established and operated, to "relieve" the railways of traffic. If this had been the real purpose, the government would not have spent increased amounts on inland waterways and operated the barge line during the depression when the railways were being bankrupted by lack of traffic. The real purpose of the government in spending the taxpayers' money on inland waterways, and in operating its barge line at large annual losses, and of the shippers who have influenced it to do so, has been to provide subsidized competition with the railways, and thereby force the railways to make lower rates than the Interstate Commerce Commission could lawfully require them to make. It has had this effect only to a very limited extent, because, being under regulation, the railways could not reduce their rates where they encountered water competition without being forced to deplete their earnings by correspondingly reducing many other rates where water competition did not exist.

"Big business" has been almost the only beneficiary of river and canal transportation. About 90 per cent of the freight moved on the Ohio-Mississippi river system has been handled in barges owned by large corporations that also owned the freight. Although getting rates lower by water than by rail, these large corporations have charged their customers the same prices for coal, steel, oil and other commodities when shipped by water as when shipped by rail. Thus, they have kept for themselves the benefit of the lower water rates that have been made possible by taxing the public for river improvements.

Why should the public continue to be taxed to provide "cheap" water transportation which is made "cheap" almost solely for large shippers? Why, especially, should the government continue losing the taxpayers' money on a barge line which even government departments will not use, when, if ever, its service is needed?

Efficiency
FOR VICTORY

Copying Hitler's Mistakes?

Much is being said today about shortages of men and materials in many industries, as is natural, for they are not only widespread, but they are bearing heavily on those charged with production, maintenance or other operations that require the expenditure of labor and materials. Probably nowhere have these shortages been felt more keenly than in the maintenance-of-way department of the railways. If a manufacturer or a processor cannot obtain the materials or the full amount of labor he needs to keep his plant running at the normal level, he can curtail his operations to conform with the supply or, as a last resort, he can shut down.

In contrast, despite the severe shortages in both manpower and practically all maintenance materials, railroad maintenance forces can neither curtail their operations nor stop them. In fact, faced with the heaviest traffic the railways have ever carried, and with train speeds that are above any previous average, more and better work is now demanded of them than was required when both labor and material were plentiful. That this is a difficult situation goes without saying, particularly as the shortages of material include such basic and critical items as rail, fastenings, switches, frogs and structural materials, all of which wear out about in ratio to the volume of traffic. To make matters worse, replacements of these items have been subnormal for nearly 15 years, while current replacements, on the basis of gross-ton-miles use, are well below the lowest point of the depression.

Regardless of these handicaps, which are very real and cannot be overcome without a marked increase in the amounts of materials allotted to these purposes, the maintenance forces have done a remarkable job, so far, in maintaining the track and structures to the standards necessary to permit movement of this record traffic promptly and effectively. They have been able to do this only because the morale of the forces, among officers and men alike, has remained at a high level, and because of the further fact that, in general, the track and structures possessed a considerable reserve of strength when the war started.

It will be a serious mistake to assume that this situation can continue indefinitely. All items that go to make up the track structure are subject to wear and are wearing more rapidly than ever before. In this connection, it should be borne in mind that relatively few of these items were new and that many of them had already seen so much service that they were slated for renewal when restrictions were placed on procurement.

The need for greater liberality in materials for track and structures is very great, and present restrictions on their procurement are causing maintenance officers much worry, for despite their best efforts, they foresee the time when track and structures will no longer be able to carry traffic with the same assured safety as heretofore. Thus an almost impossible situation is im-

pending, in which the difficulties of maintaining worn-out track in condition for heavy-high speed traffic may become insurmountable. Hitler made this mistake. Let us not repeat it.

Research vs. "Practicality"

The railway officers who, through the A.A.R. committee serving under the chairmanship of Judge R. V. Fletcher and otherwise, are endeavoring to involve the railroad industry in a larger degree of systematic foresight (i.e., research and forward planning) than it has enjoyed in the past, have not undertaken a simple assignment. It is not easy for railway managers who have so much to *do* to set aside time and facilities for a large measure of *study* as well.

To strike a reasonable balance between study and action—between planning and execution—is always difficult in running a business or a nation. Most people tend either to be long on planning and short on action, or the reverse. Few, indeed, do enough studying and thinking to chart their actions wisely, and are also sufficiently practical to make their actions keep pace with their intelligence. Men tend to run either to the "active" type, which executes rapidly without too much pondering of the morrow; or to the "contemplative" type which is hesitant about getting today's job done today.

Too great an ascendancy of either characteristic in the management of a business, or a nation, is an un-mixed evil. The national government, since the advent of the New Deal, has given a disastrous demonstration of the ineptitude of teachers and social workers for the actual business of getting useful things done—especially when economic considerations enter, with which most theorists have had no practical experience.

One of the greatest failures in the wartime government has been the Office of Price Administration which at the outset, and until quite recently, was administered by schoolmasters. A prominent New York retailer, contrasting the rationing and price control authorities in this country and in Canada, observed that the difference lay in the fact that in the Dominion he knew of no one in power with respect to a given commodity who was not thoroughly conversant with the market for that commodity; whereas, in the United States, he knew no one exercising governmental control over a commodity who had any familiarity with it.

Too much theory and too little practice have caused the costly failure of the New Deal. The contrary shortcoming—too much clever "practicality," and too little studious foresight by leaders of business and industry—largely caused the economic debacle which brought the New Deal into being.

There is little danger that railway managements—with their long habit of getting things done promptly—will suffer from overemphasis on research or contem-

plation. Up to now their greatest handicap has been that they have had too little of the studious bias—being, perhaps, as heavily weighted on the side of immediate practicality as the New Deal has with idealism. There is scarcely a serious difficulty the railroads face today which could not have been avoided, or at least greatly mitigated, if the carriers twenty years ago had embarked upon the kind of comprehensive study of tendencies in and around the industry that the A. A. R. research committee and many foresighted railroads are now undertaking.

The middle road—a compromise between excessive concern with immediate problems and overemphasis on nebulous fancies for the future—is the road to success. The carriers can give a lot more thought to the morrow before they need fear losing themselves in unproductive theorizing.

Signal Aspects to Save Train Time on C. T. C.

On recently completed installations of centralized traffic control the Nickel Plate railroad has utilized signal aspects to save train time in a manner which is worthy of special consideration. One objective is to enable a train on a passing track to get under way as soon as practicable after a train moving in the same direction has passed. In conventional practice on C.T.C. territories the power switch can be operated as soon as the train on the main track clears the track circuit at the switch, but the signal to direct the train to leave the siding cannot display a yellow aspect until the train ahead has passed beyond the first automatic signal, and cannot display the green aspect until the train ahead passes beyond the second signal.

On the Nickel Plate during the time the first automatic block is occupied by a moving train in the same direction, a leave-siding dwarf signal can be lever-controlled to display a single yellow, Restricting aspect, Rule 290, indicating proceed at restricted speed, prepared to stop short of train or obstruction. When the first train has passed beyond the first intermediate signal but is occupying the second automatic block, the leave-siding dwarf can be lever-controlled to display a yellow-over-red, Slow Approach aspect, indicating proceed preparing to stop at next signal, Rule 288. When the preceding train has passed beyond two or more automatic blocks, the leave-siding dwarf can be lever-controlled to display the green aspect. This informs an engineman that as soon as the rear of his train has passed through the turnout, the speed can be increased to the maximum which is authorized. These aspects and indications are in accordance with A.A.R. Standard Practices, and have been used extensively with interlocking signals. The application of these aspects and indications in centralized traffic control can save considerable train time.

Wooden Floors For Open Top Cars

Two factors are vital in the effort to stimulate war production. There is still a shortage in critical materials, particularly in steel, and the manpower situation is equally disturbing. The W.P.B. a few weeks ago confidently expected to increase the steel tonnage during the third quarter by a million tons, but the coal mine strike may dampen this optimistic prediction. The railroads, which must be depended upon to keep war production going at top pace and to get the war materials to the front, are handicapped because of the lack of steel and the fact that they do not have adequate equipment to meet the growing demands being made upon them.

Combined with the need for steel is the manpower shortage. The W.P.B. has decreed that defective floors in steel hopper and gondola cars must be replaced by wood flooring. This requires more manpower hours; the action was taken, however, when the manpower shortage had not yet become so acute. A great many people who should be better informed, greatly over-estimate the amount of steel that is saved by the use of the wood flooring. They forget that when wood is used it is necessary to make certain reinforcements to the underframe of the car, and also to include metal brackets or structural members on which to anchor the nailing strips for the flooring. Assuming that the weight of the bolts and nuts for the wooden flooring offsets the rivets used when steel flooring is applied, the saving in metal is not great, when allowance is made for structural changes to accommodate the wooden flooring.

Unfortunately, also, the amount of labor required to make these replacements is much greater than where steel is used. It is a relatively simple matter to replace the worn flooring with new steel plate. This is not true when it is replaced with wood. The increased labor is involved not only in making the repairs on the car, but also in preparing the wooden timbers. The old wood mill, for the time being at least, is coming back into use and is humming with activity. The wooden flooring members, at best, will last only a few years before they must be replaced. It is reported that in some instances wooden flooring on the new emergency equipment has become badly damaged and some of it has had to be replaced, although these cars have been in service a matter of months, rather than years. This whole operation is expensive to the railroads, not alone in direct expense and manpower, but also in the continuing future costs. The fact must not be overlooked also, that the wooden flooring strips cut down the inside depth of the car by at least two inches, thus reducing its cubic capacity. To cap it all, wood is not now so easy to obtain. Has the time not come to review the advisability of continuing the use of wooden floors for either new or rebuilt hopper and gondola cars?



A View of the Concourse Interior, Looking East, Showing General Architectural Treatment

Canadian National Opens New Central Station at Montreal

Part II of a description of this \$27,000,000 project, dealing principally with the track layout and station building proper—Part I discussed the overall plan

PART II*

OF THE 17 tracks at the new central station of the Canadian National at Montreal, 14 are regular passenger-train tracks, served by 7 island platforms at vestibule height. Of the other three tracks, one is the outside track on the east side, which is reserved for handling express and mail. Serving this track is an outside platform with tailboard space along a roadway that extends south to St. Antoine street. The other two tracks are at the extreme west side of the layout and are available for various miscellaneous uses. These tracks are served by a roadway that connects with the ramp drive leading to Lagauchetiere street.

The station tracks range in capacity from 8 to 21 cars, including the locomotives. Four of them are through tracks and the remainder are stub-end tracks. Of the latter, six are located in a group on the west side of the layout. These tracks are directly in line with the Mount Royal tunnel and terminate at the old tunnel station. The other seven stub-end tracks, located in a group in the easterly part of the layout, connect with the through tracks at the southerly end of the station area in the vicinity of St. Antoine street. Within the area between

Lagauchetiere street and Dorchester street, the tracks are covered at the concourse level by the concourse floor itself and by plazas and parking areas north and south of the concourse. Where they protrude beyond this area, the passenger platforms are protected by butterfly canopies of wood construction.

Concourse and Auxiliary Facilities

As already noted, the concourse spans the station tracks transversely at a location approximately midway between Lagauchetiere and Dorchester streets. The concourse and other passenger-station services are housed in a structure that has an over-all length, transverse to the tracks, of about 425 ft. and a width throughout most of its length of 108 ft. The concourse itself occupies the major portion of this structure, and from the concourse floor seven stairways, in parapeted stair wells, provide access to the passenger platforms below. In addition, provision has been made for the installation of escalators, but due to wartime conditions these have not yet become available.

The general waiting room is located at the extreme

* Part I of this article appeared in the *Railway Age* of July 31.

easterly end of the concourse, directly under a north-south public roadway, known as New East street. This street extends along the east side of the property between Lagachetiere street on the south and Cathcart street on the north, passing under Dorchester street. A highly practical feature of the waiting room is that it is entirely open on the concourse side, thereby permitting passengers to be seated out of the way and yet within sight and hearing of all activities in the concourse.

Space for Special Purposes

Extending north and south from the waiting room, and also located under New East street, are two wings of the station building. That to the south contains a barber shop, the men's toilet facilities, United States and Canadian immigration offices, the police and colonization offices, and, in the corner between this wing and the concourse, a drug store and soda fountain. In the wing north of the general waiting room are located the women's facilities, which include a rest room, toilet facilities, a specially-fitted quiet room, and a nursery en suite, with a medical room where a trained nurse is in attendance at all times. Also in this wing is a large room that has been set aside for the use of the armed forces. A longitudinal passage in the north wing extends to Dorchester street, where a stairway and escalator ascend to the street level.

Most of the remaining facilities in the station for serving the needs of patrons are concentrated in the westerly part of the concourse, largely in booths along the walls. Here are located, on the north side, the ticket windows, travel bureau, information counter, telegraph office and traveling passenger agent's office. On the south side are the hand baggage and parcel-checking counters, transfer office, newsstand and public telephones. At the extreme west end, spanning the width of the concourse, is the restaurant. Suburban trains operating through the Mount Royal tunnel are reached from the stairways at the west end of the concourse, and in concentrating the various facilities at this end of the concourse the railroad had in mind the lesser need for congregating space where suburban passengers are handled.

Extending southerly from the west end of the concourse is another single-story wing with corridor, which reaches to Dorchester street. This wing is devoted for

the most part to dining rooms, separated by folding doors, which are available for private functions: From the end of this wing, a branch passageway leads to another stairway and escalator ascending to the street level at the corner of Mansfield and Dorchester streets. At the same intersection, but on the opposite side of Dorchester street, another stairway connects the street and concourse levels.

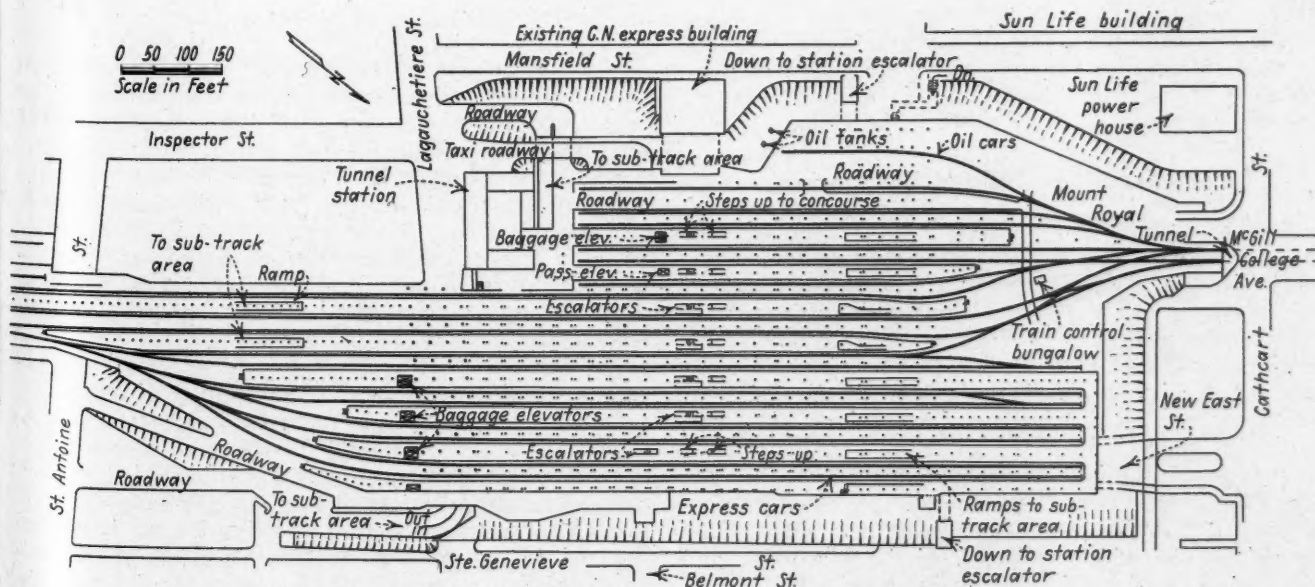
As already mentioned, the station building has two floors of offices directly above the concourse. These are occupied for the most part by the district and division operating staffs of the road. Access to the upper floors is obtained by means of two elevators at opposite ends of the north side of the station building, of which that at the west end extends also to the sub-track level. Each elevator is located in a tower that also contains a stairway.

In the easterly stair tower, a doorway opening onto New East street constitutes another means of entry to the concourse, as well as to the upper floors.

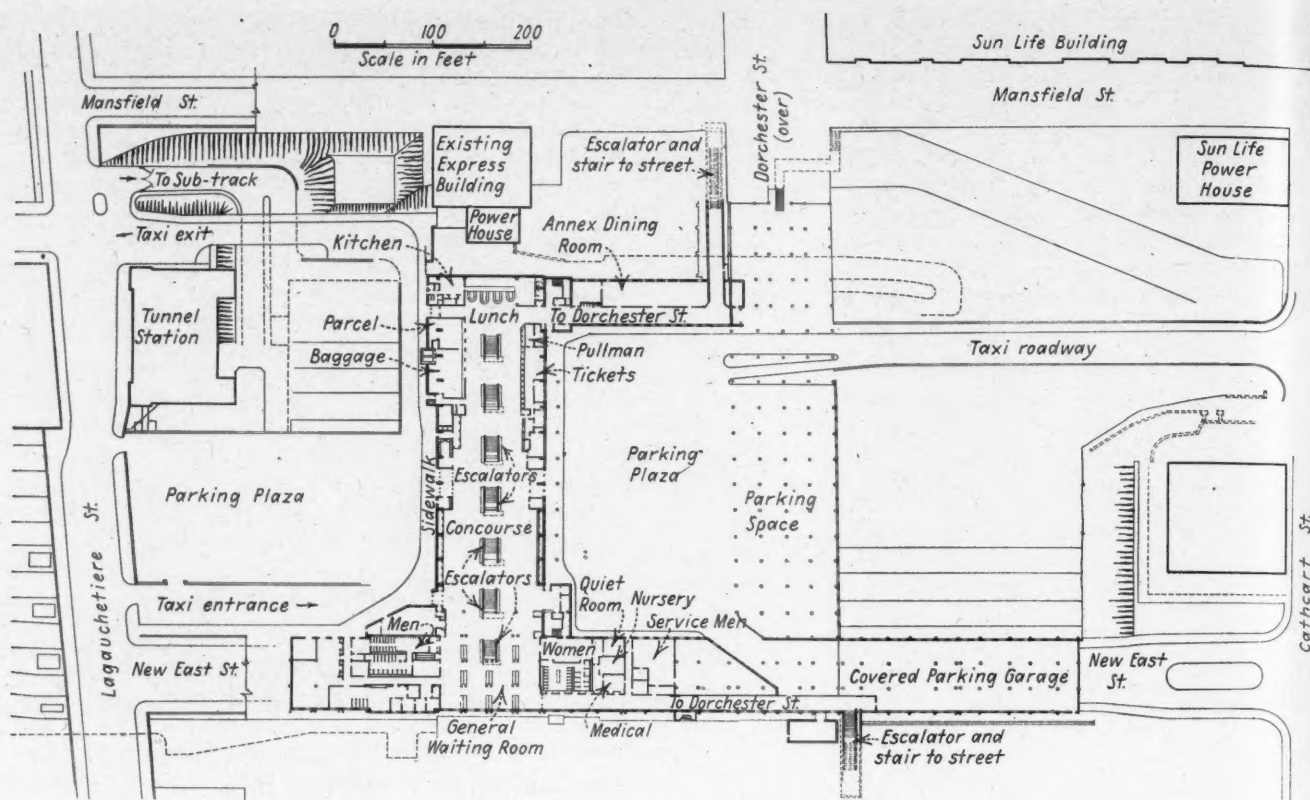
Means of Egress and Exit

For passengers arriving at, or leaving, the station in cabs or private automobiles a main entrance is provided in the center of the north side of the concourse and a main exit directly opposite in the south wall. Taxis and private cars carrying outgoing passengers reach the concourse by means of a three-lane ramp descending from Cathcart street to the parking plaza between the station building and Dorchester street. These vehicles make a circuit of the plaza and leave by the same ramp. A sidewalk on this ramp constitutes still another medium by which pedestrians can reach the concourse level. In addition to the open parking space on the plaza, part of the area under the Dorchester Street bridge is available for this purpose, as is an adjoining area under the viaduct carrying New East street. Altogether there is space in these areas for about 250 cars.

Incoming passengers who intend to proceed by cab or private car leave the station by the main exit in the south side of the concourse. This also opens on a plaza of which the southerly part is devoted to a parking lot for cabs. Street vehicles reach the plaza in front of the exit door by means of a looping one-way drive, flanked by a sidewalk, that connects with both ends at Lagau-



This Plan Shows the Arrangement of Facilities at the Track Level of the Central Station



Plan of the Concourse Level, Showing Connections With Adjacent Streets

chietiere street. Canopies are provided at both main doorways.

Structurally and architecturally, the new station has many interesting features. A number of considerations were involved in deciding on the type of construction to be used. Predominant among these was the need for adopting measures in designing the substructure to prevent the vibration created by moving trains from being transmitted to the superstructure of the building. This meant, of course, that in the area under the station building it was necessary to provide independent supports for the tracks on the one hand, and for the structure over them on the other, these supports to be suitably insulated from each other. Furthermore, since the future development of the overhead rights throughout the station area is a definite possibility, it was necessary to design the substructure in such a manner as to simplify the installation at any later date of the foundation supports that may be needed to carry overhead buildings.

Considerations Influencing Design

Another consideration influencing the type of construction adopted was the fact that at the time the project was revived in 1939, there was a considerable amount of unemployment in Canada, and it was desired in resuming work on the project to provide as much unemployment relief as possible consistent with considerations of economy. For this reason, since the manufacture of reinforced concrete entails the use of a relatively high proportion of labor, it was decided to employ this type of construction to the fullest possible extent.

For the superstructure, it was desired to employ a type of construction that would not create any obstructions throughout the width or length of the concourse, and which would lend itself to a pleasing architectural treatment in the concourse interior. With these considera-

tions in mind, a design was adopted involving the use of tied rigid-frame arches spanning the width of the concourse, as the primary supporting members of the superstructure. In these arches, which are spaced 25 ft. apart, the steel supporting legs extend to bed rock, and the floor of the concourse serves as the tie member. At the springing line of the arches, which is the level of the finished floor of the concourse, the clear span is 108 ft. The height at the center line of the concourse is nearly 34 ft. The floor of the concourse and that part of the superstructure outside its limits, such as the elevator towers, are supported on steel columns, also extending to rock.

Details of Substructure

In line with the decision to use reinforced concrete as widely as possible, the entire track-supporting structure in the area of the sub-track level was constructed of this material. Essentially, this construction consists of reinforced concrete beams and slabs carrying the tracks and platforms (also of concrete), which span between concrete columns. These spans extend longitudinally with the tracks, and at each point of support there are two columns, with a space of 2 ft. 6 in. between them to allow room to accommodate a steel supporting column for the superstructure. Longitudinal expansion joints in the track-supporting structure are provided at alternate rows of columns, and at each point of support in these rows there are four concrete columns, arranged in a rectangle around the space for the steel column.

Since the entire area occupied by the station was excavated out of solid rock it was possible to land all the supporting columns on this material directly below the floor of the sub-track level. At each group of columns an excavation was made of the necessary depth to obtain a proper bearing and to accommodate the type of

footing employed. In constructing the footing, the first step was to place sufficient concrete in the bottom of the excavation to obtain a level surface. Next, a concrete pedestal, about one foot high, was constructed at the location of each concrete column, and the level top surface of each of these was covered with an asphalt coating, after which the remainder of each column footing was constructed in place on the pedestal. These horizontal separations in the column footings are for the purpose of reducing the transmission of vibration from the upper to the lower parts of the footings.

Curtailing Vibration

At each column grouping, the steel column was carried down to the same depth in the excavation as the concrete columns, and in the construction of the steel-column footing additional precautions were taken to prevent the transmission of vibration upward through the column to the superstructure. For instance, at the lower end of each steel column there is a steel grillage, and this is separated from the concrete floor of the excavations by a laminated insulation pad one inch thick. These pads are designed to carry a load of 1,000 lb. per sq. in. Each of them embodies a layer of $\frac{1}{8}$ -in. sheet lead, top and bottom, enclosing two layers of $\frac{3}{8}$ -in. Transite separated by a sheet of 20-gage steel. In addition, from the bottom of the excavation to the floor of the sub-track level, the steel column, previously encased in concrete, is enclosed in a jacket of 2-in. cork. The final step in the construction of each footing was to fill the entire excavation with concrete.

Throughout the plaza and parking areas north and south of the station, the construction at the concourse level consists of a concrete slab, with integral beams, supported by concrete columns that are founded on the track-supporting structure. Looking to the future possibility of overhead development in these areas, the concrete foundation columns are arranged in the same manner as described above for the areas under the present superstructure, the purpose being to facilitate the future insertion down to bedrock of steel columns for supporting a superstructure.

In the design of the columns carrying the superstructure of the station building, it was, of course, not possible to insert cross-bracing between the lines of columns, which are parallel with the tracks. To insure, therefore, that these columns would have the necessary resistance to lateral pressure, they were designed to carry a substantially heavier vertical load than that actually imposed. In the construction of the station building, all concrete and brick work above the concourse was placed before the concrete floor of the concourse was laid, the object being to prevent the cracking of the latter due to the spreading of the rigid frames.

Functional Rather Than Monumental

In the design of the station exterior, it was not the intention to create a striking edifice that would constitute a landmark, for it is contemplated that the structure will ultimately be largely obscured from public view by multiple-story buildings rising around it. Rather, it was designed along simple, although modern and attractive, lines. Essentially the station is an oblong structure with a flat parapeted roof, but the presence of the twin towers containing the elevators and stair wells, together with the judicious use of set-backs, have imparted a pleasing architectural effect. Faced with buff-colored brick, the exterior is trimmed with a white stone which is applied

with especially good effect in the window spandrels in the two towers, where the use of corner windows imparts a modern note.

By any standard of measurement, the station interior is an outstanding architectural creation, combining simplicity in shape and line with tasteful surface finishes and colors to produce an effect that is dignified, attractive and cheerful, and which, while emphasizing spaciousness, carefully avoids any tendency to somber massiveness of the classic type. In achieving this result, generous recourse has been had to the wide variety of modern finishing materials that are available today.

The concourse, with its clear width of 104 ft., its height at the center line of 33 ft., and its length of 350 ft., is the central and dominant feature of the station. The ceiling in this room, which is peaked at the center, follows the constructional form of the rigid frames, the legs of which project from the walls in the form of piers or pilasters that taper from the ceiling to the floor. It can be seen, therefore, that the rigid frames have been incorporated as an integral part of the architectural treatment of the concourse. In fact, they are a dominating feature and contribute greatly to the modern and attractive appearance. Other structural features of the concourse not heretofore mentioned include large wire-glass windows in the upper side walls between the pilasters, and a large window area, glazed with plain glass, in the upper part of each end wall. Thus, ample daylight illumination is provided in all parts of the concourse. All the windows in this room have bronze sash.

Murals Depict Canadian Life

Throughout the concourse, the floor is of marble terrazzo predominantly reddish in tone, and the stair well parapets are of the same material, with a bluish tinge. The projecting parts of the rigid-frame legs are enclosed in a soft blue terrazzo, incorporating horizontal zinc strips, although the outer face of each leg is covered by terrazzo in a contrasting color. On both sides of the concourse throughout its length, the lower parts of the side-wall spaces between pilasters are occupied either by the various booths or by oak-paneled, glass-enclosed display cabinets. Above this level, the side walls are covered with a special stucco in a buff color. Along each side of the concourse, a strip of the ceiling outside of a slight offset is covered with plaster painted a mottled blue, and has the effect of providing a connecting band for the tops of the pilasters. Otherwise, the ceiling is a broad expanse of acoustic-tile in a cream color, unbroken except for flush lighting fixtures and a number of loud speakers placed on the center line.

The window at each end of the concourse is located at the back of a large recess in which the outer projecting corners are supported by circular columns. At each end, the walls of these projections and a connecting band beneath the window are devoted to low-relief murals depicting various aspects of Canadian life, industry and culture. These murals, which are silhouetted against a greyish-red background, were sculptured at the site in a special stucco before erection.

Other aspects of the concourse include vestibule entrances with glass-paneled oak doors; glass gates with metal frames at the stair wells; illuminated track-number signs at the stairways together with panels of the roll-up type giving train destinations; a system of signal lights and push buttons that permit of a high degree of co-ordination between the concourse, the platforms and the signal control tower in the starting of trains; a clock suspended from the ceiling at each end; and a heating and

ventilating system involving four large exhaust grilles, one at each corner, and lines of air inlets in the ceiling near the side walls and in the end walls.

In the booths along the side walls of the concourse are found a variety of different types of finishing materials in attractive combinations, including oak paneling in the telephone room and booths and the newsstand; a black Formica counter at the newsstand; a birch counter at the ticket office, except at the window openings where it is topped with bronze; grilles and baggage rails of bronze at the ticket counter; and walnut paneling and counter with bronze trim at the booth containing the travel bureau. The baggage and parcel checking rooms are featured by bronze counter tops, Brady shutters, and fluorescent lighting.

In the general waiting room, which, as previously noted, is located at the east end of the concourse directly under New East street, the floor is of terrazzo with a bluish color; the walls and intermediate columns are covered with Ilco-buff stone from Indiana, and the ceiling is of perforated Transite. Artificial lighting in this room is in the form of flush ceiling fixtures, while daylight illumination is afforded by a series of glass-block panels in the east wall. Seating accommodations in this room are in the form of back-to-back settees of oak construction.

Additional Public Rooms

Among the other public rooms at this end of the station, the rest room facilities are worthy of special mention. These rooms have vitrolite walls in shades of pearl grey and shell pink in the men's and women's rooms, respectively, stall partitions of black vitrolite with birch doors, terrazzo floors and cork-tile ceilings. Practically all of the toilets are of the pay type, and the provision of bathrooms in both rooms, and showers in the men's room, marks these facilities as being unusually complete.

The women's rest room is especially designed to create a restful atmosphere. Here the walls are covered from the floor to the ceiling with oak paneling with a black marble base course, the floor is covered with linoleum in a mottled blue color, and the ceiling is of cork tile with flush lighting fixtures. The seating facilities in this room also consist of oak benches, placed both in alcoves along the walls and at intermediate points. Two full-length mirrors are provided. It should be noted, incidentally, that the purpose of placing cork tile ceilings in most of the rooms under New East street was to absorb the noise created by the passage of street traffic overhead.

The restaurant at the west end of the concourse, which is set off from the latter room by a glass partition, is an ultra-modern facility. Food service is rendered here largely by means of a low horse-shoe shaped counter with four bays, although there are also a number of tables, the total capacity being about 100 seats. The counter top is of verde antique marble, and the stools have back rests and seats upholstered in red leather. A feature of the counter, designed to appeal particularly to women patrons, is a stainless steel shelf on which hand bags and other articles can be placed. Other aspects of the restaurant include an oak-paneled wainscot, grey-green plaster walls, a ceiling of perforated Transite over the counter, and of plaster painted a cream color over the remainder of the room, linoleum floor, fluorescent lighting, and stainless-steel fixtures and fittings behind and under the counter. For the convenience of its patrons, two small toilet rooms are provided directly adjacent to the restaurant.

To facilitate the making of announcements of interest to railroad patrons, a public address system has been installed in the station, with loudspeakers in all public rooms.

For ventilating and heating the concourse, a forced air system was installed, of which the inlets and exhaust grilles have been mentioned previously. By means of four fan rooms located in the projecting corners of the concourse, fresh air is drawn in through louvers in the two towers and is filtered (and heated during cold weather) before being discharged into the concourse. Most of the other rooms are heated by radiators, some of which are recessed. Ultimately a new power plant is to be built to serve the station. For the time being, the old plant and a temporary installation along the viaduct are being used, but next winter steam is to be obtained from the power plant of an office building nearby.

Treatment of Upper Floors

On the office floors above the concourse the interiors have been so designed as to create a light, cheerful atmosphere. In general, these rooms have light-green plaster walls, with a grey-green base board of wood, plaster ceilings in a cream color, and green linoleum floors. Fluorescent lighting fixtures are used throughout. For sound proofing, the dispatchers' offices have gypsum walls and perforated Transite ceilings. To facilitate alterations in the arrangement of the space, the partitions on the office floors are of the movable type.

It should be emphasized here that in its present form the station layout constitutes only a partial realization of the final plans that have been made for this area. Future construction, which will be contingent on various developments, including the disposal of the overhead space, will include the building of a bridge to carry Belmont street across the station site on a line flanking the south side of the concourse, and the extension of Inspector street north past the west end of the station building to Dorchester street, where it will pass under the bridge carrying the latter street and connect with driveways leading to McGill College avenue.

Other Work Completed

The work that was done on the terminal improvement program since the resumption of activity in 1939 included the completion of the connecting line between the new station and Victoria bridge and between this latter line and the main line at Point St. Charles, and the construction of the various auxiliary facilities. The connecting line to Victoria bridge has a total length of about 1½ miles. For about 2,500 ft. south from St. Antoine street the line has six tracks; for the remainder of the distance it has four tracks except that the vertical lift bridge across the Lachine canal is a double-track structure, although it has a substructure for an additional double-track span.

Beyond the limits of the concrete viaduct carrying the connecting line, this line and the double-track connection at Point St. Charles are carried on earth embankments. Bridge structures on the connecting line include 11 across streets, 3 across railroad tracks and the one across the canal. For the most part, the street bridges are of conventional construction, except that the layout at one location presented an unusual problem. This crossing involved a three-way intersection at a point where the tracks are on a 6-deg. 30-min. curve, and where they converge from six to four tracks. The structure that

(Continued on page 241)

Hamilton Becomes Electro-Motive Executive Committee Chairman

Cyrus R. Osborn is elected vice-president of General Motors Corporation in direct charge of Diesel locomotive activities



H. L. Hamilton



C. R. Osborn

CYRUS R. OSBORN, of Detroit, Michigan, assistant to vice-president of the General Motors Corporation, has been elected vice-president in direct charge of the Electro-Motive Division at LaGrange, Ill. Until two years ago Electro-Motive was a separate corporation of which H. L. Hamilton was president and F. H. Prescott was vice-president and general manager. It was then consolidated with the General Motors Corporation, and Mr. Hamilton became a vice-president of the Corporation in charge of the Electro-Motive Division, Mr. Prescott continuing to be general manager.

Under the new organization Mr. Hamilton continues as a vice-president of General Motors, and will be chairman of the executive committee of the Electro-Motive Division; Mr. Osborn, as vice-president, will be, as stated, in direct charge of the Electro-Motive Division, with headquarters at LaGrange, and Mr. Prescott will report to Mr. Osborn.

A. W. Phelps has been transferred from the Electro-Motive Division to be assistant to E. F. Johnson, vice-president of General Motors, with headquarters in Detroit.

H. L. Hamilton, who was born at Little Shasta, Cal., on June 14, 1890, began his railroad career as a call boy on the Southern Pacific and worked in locomotive service on a number of roads; he became road foreman of en-

gines for the Florida East Coast, a position which he left in 1914 to join the White Automobile Company at Denver, Col. He worked for this company in various capacities in both the engineering and sales departments, becoming western wholesale manager in 1920. During this period, Mr. Hamilton not only experimented with White automotive equipment adapted for operation on rails, but became generally familiar with the advantages and limitations of other automotive-type rail equipment including the early G. E. gas-electric and the McKeen motor cars. He served as civilian member of the Engineering Committee, Motor Transport Corps, U. S. A., for about 14 months during World War I.

Mr. Hamilton recognized the need for rail motor equipment designed especially for branch line and secondary passenger service, and in 1922 founded the Electro-Motive Company at Cleveland, Ohio, which in the next eight years, or until 1930, produced about 600 gas-electric rail cars driven by Winton gasoline engines ranging from 175 hp. to 900 hp. As early as 1928 the limitations of gasoline-engine drive from horsepower and economy standpoints became apparent, and Mr. Hamilton instituted research, in conjunction with the Winton Engine Company, to see if a Diesel engine could be developed to meet the increased power requirements for railway service. General Motors purchased the Electro-

Motive Corporation in 1930, and also took over the Winton Engine Company, continuing the Diesel engine research and installing the first successful two-cycle 600-hp. Diesel-electric power plant in the Burlington's Pioneer Zephyr in 1934.

In 1935, under Mr. Hamilton's direction, the Electro-Motive plant at LaGrange, Ill., was constructed, being expanded in 1938 to afford completely integrated manufacturing facilities for Diesel locomotives, including the engines, electric transmission, locomotive bodies, trucks and auxiliary equipment. The number of employees was increased from 600 in 1934 to 7,000 in 1939 and, up to July 1, 1943, this plant had turned out a total of 1,054 Diesel locomotives of all types, ranging from 600-hp. switchers to 4000-hp. road passenger locomotives and 5400-hp. road freight locomotives. This power is now in service on 62 roads. The 2-cycle Diesel engines which drive these locomotives are constructed with 6, 8, 12 and 16 cylinders, developing rated horsepowers up to 1350 per engine.

Mr. Hamilton has been particularly active in co-ordinating Electro-Motive activities with the war effort. This company was selected by the Navy to manufacture the Pancake Diesel engine, developed in 1936 as a result of collaboration between the Navy and the General Motors research organizations, the design being intended to supply a light-weight, high-speed Diesel engine for special marine service. A separate new plant, built by the Electro-Motive Division at LaGrange in the fall of 1940, was in full production on this engine 12 months later. In January, 1942, the greatly enlarged Navy shipbuilding program necessitated another increase of 125 per cent in Electro-Motive facilities for manufacturing the 12-cylinder railroad Diesel engine which had been adapted with some slight modifications to marine service. The required plant enlargement was completed and placed in operation by January, 1943.

A personal sketch of Mr. Hamilton's career develops some interesting phases. He is a second-generation Californian, his grandfather having gone to that state in 1843. He was born on his grandfather's cattle ranch in the northern part of the state and showed a mechanical aptitude at an early age, having built his first engine when he was eleven years old. His interest in mechanics has been the basis of his life's activities, and the successful adaptation of the internal combustion engine to railway motive power, which has now become generally accepted in the form of the Diesel locomotive, can be considered as his contribution to the mechanical arts.

After General Motors acquired the Electro-Motive Corporation in 1930, in which Mr. Hamilton was the principal owner, he moved his family from Cleveland to Los Altos, Cal., with the intention of taking up other activities. However, in 1934 General Motors called him back to build the plant at LaGrange and establish the Diesel locomotive activity so as to capitalize the technical developments which had occurred in the preceding four or five years.

Mr. Hamilton maintained his residence in California, thereby becoming a transcontinental commuter, and while he expects to spend still more time at his home in the future, he will retain a direct and personal interest in the Diesel locomotive activities of General Motors Corporation, particularly in the capacity of chairman of the executive committee of the Electro-Motive Division, and consultant on major problems arising in the Diesel locomotive activity.

Cyrus R. Osborn was born in Dayton, Ohio, on August 27, 1897. He received his early education in Dayton

public schools, and was graduated from the University of Cincinnati with a degree in Mechanical Engineering in 1921.

Mr. Osborn's first employment with General Motors was as an apprentice in the Dayton Engineering Laboratories Company in July, 1921, and he became a field service engineer a few months later. In December, 1923, he became technical manager of Overseas Motors Service Corporation, and in September, 1925, he was named general manager of that organization. From 1929 until 1932 he served as general manufacturing manager of GM Export Division. In May of the same year he went to Stockholm, Sweden, as managing director of General Motors Nordiska. He remained in Stockholm until February, 1934, after which he served on special assignments in Mexico and England.

At the beginning of 1935, Mr. Osborn was placed in charge of engineering for the Overseas Division, and a year later was appointed assistant to the general manager. Early in 1936 he was sent on special assignment to Adam Opel A. G. in Russelsheim, Germany, and in July of the same year became special assistant to the general manager there. He was appointed general manager of the Opel operation on July 1, 1937.

He returned to this country in June, 1940, and became active in defense material relationships at the central office in Detroit. In 1941 he was appointed assistant to R. K. Evans, vice-president of General Motors in charge of the General Engine Group, which includes the Electro-Motive Division. He was elected a vice-president of the corporation on August 1, 1943.

Mr. Osborn is a member of the Society of Automotive Engineers, of Phi Delta Theta and of Tau Beta Pi, honorary engineering society.

Abandons Checks for Small Disbursements

THE Southern Railway has abandoned the practice of paying remittances of amounts less than \$1 by check. Instead, it now remits such small sums in cash—placed in a pasteboard coin container, which bears on its cover the name and address of the payee, the amount, a reference to correspondence denoting the reason for payment. The coin container is placed in a window envelope which, thereby, is automatically addressed.

The old method of making these small remittances

SOUTHERN RAILWAY SYSTEM Atlanta, Ga.			
To Claimant Whose Name and Address Appears on This Coin Container:-			
The payment of your claim described below in coin instead of by Bank draft conserves much needed man power by reducing the effort of our employees, Bank employees and you or your employees. Southern Railway System appreciates your co-operation. T. H. Seay - Comptroller			
Date Mailed			
7/6/43	T. H. Seay 1635 Quebec St. N. W. Washington, D. C.		
Letter July 5, 1943 Claimant's Number		1 Carrier's Number	\$.39 Fare \$.14 Tax Amount

This Is the Cover (Reduced in Size About One-Half) to the Coin Container by Which the Southern Makes Small Remittances—It Is Used with a Window Envelope, Saving Addressing Expense

was by voucher. This meant clearing checks through banks, keeping elaborate records and tabulations and going through the same expensive routine that is necessary in connection with vouchers for much larger amounts. In addition it occasioned trouble and delay for those who received these small checks—going to the bank, identifying themselves in many cases and getting them cashed.

The old method of handling these small payments cost the railway about \$1 per voucher—actually more than the vouchers themselves, which for a number of years have averaged about 37 cents each.

It is estimated that the cost of handling these payments by the new method will average about 5 cents each, including postage, a saving of about 95 cents per voucher—not to mention the inconvenience to those who receive the checks and the banking operations necessary to pay and clear them.

Algerian Railroaders Compliment Americans

AT THE May Day (Labor Day, European-style) celebration in North Africa, the management of the Algerian Railways (Chemins de Fer Algériens) took occasion to express feelings of warm regard for the American soldier-railroaders, who have been working with them in the movement of military supplies. A ceremony in commemoration of the occasion was held, attended by some 1,000 employees, at which M. Ducluzeau, director (i. e., chief executive officer), of the Algerian Railways, presented medals and flags to employees for distinguished and lengthy service.

In the course of his address M. Ducluzeau had the following to say of his relations with the Military Railway Service of the U. S. Army:

"Let me tell you of the importance of the assistance we are getting from our Allies with respect to locomotives, cars, personnel and spare parts. General Gray [i. e., Carl R. Gray, Jr., executive vice-president of the C. St. P. M. & O. and now in command of the Military Railway Service], able railroad man from the United States of America, handles daily for our account with his staff all the questions which concern us and helps us to solve successfully our most difficult problems."

General Gray Represents American Railroaders

General Gray attended the ceremony as representative of the Military Railway Service, and reports through the War Department, after the presentation of awards to employees for long and meritorious service, that the assembly moved to the Algerian Railways' general office, where the names of employees who lost their lives in World War I are inscribed, and there the French and company flags were lowered in salute to the memory of the fallen, while an employees' band played the French national anthem.

From General Gray's report to the War Department, it is evident that he was impressed with the degree of co-operation with the U. S. Military Railway Service thus evidenced by the management of the Algerian Railways and also by the spirit displayed by Algerian railwaymen—of love of their country and pride in their own railroad.

Canadian National Opens New Central Station at Montreal

(Continued from page 238)

was designed for this location is a reinforced concrete viaduct with girders up to 100 ft. in length. The vertical lift bridge across the canal generally follows present-day practice, except that it is a fully-counterbalanced structure.

Because of this feature, it was necessary to incorporate means to insure that the span will be properly seated when in the down position. This consists of a 25-ton seating load at each corner of the bridge, embodying a motor-operated toggle.

Electrification—Signaling

An essential aspect of the improvement project was the electrification of the approach tracks to the new station. The electrification consists of an overhead catenary system and covers the connecting line to Victoria bridge and the line westward from Point St. Charles to Turcot. Hence, necessary trackage for changing engines had to be provided near the north end of Victoria bridge and at Turcot. The entire station layout and its approaches are incorporated in an interlocking system which extends to a point about two miles south of the Victoria bridge and westward to Turcot. This system is operated from a central tower located near the Lachine Canal crossing, which also contains the control equipment for the lift bridge.

One other feature of this improvement project that is worthy of mention is the 500-car coach yard which was built adjacent to the company's existing shops at Point St. Charles. The facilities at this location include a car repair shop, a wheel shop and a commissary building.

Design and Construction Personnel

Since the inception of this project, all design and construction work pertaining to it has been under the direction of C. B. Brown, then chief engineer of the system, who has remained actively in charge of the work since his retirement as chief engineer nearly four years ago. H. A. Dixon, now chief engineer, has exercised general supervision over the undertaking since assuming that position in 1939. All structural design work involved in carrying out the project was under the supervision of R. O. Stewart, now engineer of bridges. John Schofield, chief architect for the system, and George F. Drummond, assistant chief architect, had general supervision over the design of the new station, with John W. Wood, architectural assistant, in direct charge of this work. All construction work, except for the station building and the sub-track area, was in charge of the late C. S. Gzowski, chief engineer of construction, until his death in 1940.

Following Mr. Gzowski's death, A. D. Ferguson, who had been construction engineer in charge of the terminal project since the resumption of activity in 1939, became engineer of construction, in which capacity he had general supervision over all the construction work from the lift bridge northward. All grade-separation structures elsewhere were built under the supervision of H. L. Currie, engineer of grade separation. A. H. Jones, assistant engineer, was responsible for the track plans, and R. G. Gage, chief electrical engineer, had charge of the design of the signaling and electrical aspects of the project.

A Look at Postwar Rolling Stock*

New materials will affect design characteristics of locomotives and cars—Competitive position of railroads will be improved by adoption of changes

by **Morris P. Taylor**

Assistant Mechanical Engineer, Southern Pacific

THE haulage of heavy basic commodities, such as the products of agriculture, mines, and forests, for long distances at low rates is a primary function of American railways and in normal times accounts for the great bulk of railway traffic and income. Considering the general post-war transportation situation, it appears that this type of traffic will account for an increasingly large proportion of railway income since railways are in the best competitive position to handle this type of traffic.

Rail haulage will remain predominant especially if rate-making bodies take a realistic view of transportation and allow the railroads to quote the lowest rates under which they can profitably work, with reductions for quantity shipments and for back haul, irrespective of whether other means of transportation can operate at such rates. Our economic system can function only if the lowest-cost producer is allowed to reduce prices and still realize a profit.

The principal requirements for transportation of heavy bulk commodities are low cost and reliability of service; speed is secondary to the extent that lower rates will in most cases attract traffic. The primary advantage of rail transportation for heavy haulage lies in the very low coefficient of friction of railway freight equipment, which varies from .002 to .004 for total over-all resistance at normal freight operating speeds. With this extremely low traction resistance, a freight train can make entirely satisfactory schedules in average territory for heavy-commodity haulage with less than 2 hp. per net ton of load; and the energy requirements are in the neighborhood of .03 hp.-hrs. per ton-mile. In level territory and where heavy coal and ore shipments are handled, the above requirements are greatly reduced, and may even be below 1 hp. per net ton. In mountainous territory, of course, the power requirements increase; but, due to the locomotive power being independent of the train, helpers can be cut in and out as required and the overall power requirements on long hauls are not greatly increased.

The Post-War Fuel Situation

In the post-war period there will be available new materials, new machinery, and new devices, which will further increase the efficiency of rail haulage. At the same time there may be distinct shifts in the railway fuel situation that may have far-reaching effects on the types of power used.

Fuel to produce power, or power itself, is one of the principal commodities used by a railway for freight haul-

age. The sources of railway power used in this country are three: coal, products of petroleum, and electricity. Coal is the principal fuel used on American railways. Throughout most of the country there are ample deposits that can be worked at reasonable cost, and there are known to be vast reserves, not only of bituminous coal but of low grade lignites, that can be and are being used for railway power. Coal, although by all odds the cheapest fuel per heat unit in most parts of the United States, is more expensive to handle than oil and is utilized at a much lower thermal efficiency than petroleum fuels. However, in areas where low-cost coal is available on the line, it will in many cases give the lowest fuel cost per ton mile hauled.

Petroleum Prospects Problematical

The petroleum situation is much less clear; in fact, it is so confused the industry does not agree within itself as to the post-war position. It seems probable that this country, in the post-war era, will not be in the surplus position that it was in pre-war times. The United States has undoubtedly vast resources of petroleum, with some of them available only at higher production costs. There will be vast demands for petroleum products. In spite of the probable improved gasoline mileage of post-war automobiles, industry and living may be spread out over wider areas, resulting in a greatly augmented annual mileage, which will be further increased by higher standards of living.

It is entirely possible that the United States after the war may be the world's greatest producer of petroleum, and at the same time a net importer. Any shift from the pre-war surplus position will raise the price levels of petroleum products and will also intensify the use of the cracking process.

Railroads use two kinds of petroleum fuels; low-grade oils, usually cracking-still residues, and Diesel fuel, a distilled product having a refinery cost little below that of gasoline. If the gasoline demand should be such as to put this country in a net importing position; cracking and other conversion processes will be further stepped up, and there will be a reduction in the supply of Diesel and residual fuel fractions, which may affect operations on railroads that do not have cheap coal available. All predictions on petroleum supply are only guesses, but it is doubtful if we will return to the pre-war position of government curtailment to prevent oversupply.

Electric power in the post-war era will be obtainable in large blocks at very low rates, particularly in some parts of the West and South, and will probably be used more extensively for main-line freight haulage.

The fuel situation is directly related to the types of locomotives available to utilize the various sources of

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power. Present locomotives available for freight haulage are direct-connected steam, Diesel-electric, and electric. To these there will be added in the post-war era the combustion turbine and the steam turbine, both with electric drive. A possible variant is the mercury-steam turbine, using an electric drive.

The Outlook—Steam, Diesel, Electric

Present types of steam locomotives will be further improved in power, reliability, and low maintenance cost characteristics in the post-war period. When the X-ray apparatus now being used in testing war materials becomes generally available, the welded locomotive boiler will be used entirely, provided of course the present government restrictions on welded boilers are removed. Welding will reduce the weight of boilers, and practically eliminate pitting and caustic embrittlement. The machinery and running gear will be materially reduced in weight by the war developments in the production of low-cost alloy steels.

Poppet valves, which are successfully used at present, will be widely applied after the war and promise a saving of 20 per cent or more in fuel. The use of light alloys for non-structural parts of the locomotive and tender will eliminate a great deal of parasitic weight and the use of aluminum or light alloy reciprocating parts will practically eliminate dynamic overbalance on the rail. The direct-connected steam locomotive will never have a high thermal efficiency, due to the narrow temperature limits on which it operates. It will be used where cheap coal or by-product oil is available and in other services where the hours operated per year are limited by traffic requirements so that its low carrying charges will more than compensate for its higher operating costs.

The Diesel-electric locomotive has many advantages for freight service. It is powerful, smooth, and efficient in operation and its use will expand especially on heavy grades and in territories where water for locomotive boilers is scarce and poor. The great advantage of the Diesel up to the present time lies in the availability of its full horsepower over a wide range of speeds, which on heavy grades results in greater trainloads per locomotive unit. In certain territories the Diesel has a lower-plant operating cost, but this may not be true in cheap coal districts. The principal disadvantage of the Diesel lies in a high first cost, which makes it less suitable to meet seasonal traffic demands.

Post-war changes in the Diesel will be in the use of smaller, higher-speed engines to reduce first cost, maintenance, and oil consumption; and in reducing weight, both by the use of light metals and higher-speed engines. The present units are overweight as compared with the ideal and this excess will be eliminated in post-war designs. The lower weight will also reduce the initial cost, which will tend further to increase the use of Diesels for main-line freight transportation. The Diesel may be handicapped in the post-war era by the general petroleum situation, as intensified demands for higher-grade fuels may result in cracking the Diesel oil fractions now available.

Electric and Turbine Locomotives

There is a decided possibility of main-line railway electrification in the post-war era especially on Western lines. Given cheaper metals for transmission lines, cheaper electrical power available in large blocks, a low rate of interest to encourage post-war employment, together with vacuum-tube converters and other refine-

ments, the electrification of Western mountain grades is not an impossibility, especially if we are to be in a net importing position in regard to petroleum. The characteristics of the electric locomotive are well known, it can be built to any power and to practically any desired power characteristic, it is at present the lightest form of locomotive, so much so it often has to be ballasted to get sufficient adhesion. In this connection, it should be pointed out that the development of the Diesel has in a way advanced the possibility of main-line electrification, as Diesel-electric switching and local freight units can be used, taking overhead power on the main line and using the Diesel engine in yards and on industrial tracks. This eliminates the necessity for expensive overhead wiring over little-used trackage. From the standpoint of long-range national planning, the electrification of heavy grades has everything to commend it, since the use of hydro-electric power will conserve fuel resources for other essential uses.

The combustion turbine locomotive with electric transmission was in the course of development just before the war, and will undoubtedly be introduced after the war. Its advantages lie in the low maintenance cost and light weight of the turbine, its ability to burn residual oils, and a fuel efficiency more than double that of the steam locomotive. Its first cost should be somewhat below that of the Diesel, and its fuel cost not much above, because bunker oil is lower in cost than Diesel fuel oil.

The steam turbine with electric drive was tried experimentally before the war but was handicapped by difficulties in condensing large amounts of steam and obtaining a good vacuum with an air-cooled condenser. A possible variant of the turbine is to use a binary cycle, a mercury cycle over the steam cycle, which would have great advantages for locomotive use. With the higher upper temperature limit of the mercury cycle it would be possible to get a thermal efficiency of about 25 per cent with a condenser temperature of 280 deg. F. This would give a 180 deg. drop across the condenser surfaces under all conditions, which would solve the condenser problem. A mercury-steam locomotive could burn powdered coal, and calculated at \$3.00 per ton the fuel cost would be far below that of any present form of self-contained locomotive.

Freight-Car Equipment

Freight cars will be much changed, using new materials and improved designs to reduce weight, improve high-speed riding qualities, and reduce maintenance costs. It must be remembered that a freight car is not only a carrying vehicle but also a storage warehouse, and that in many lines of traffic the demand for cars is highly seasonal. There is, therefore, a point beyond which it will not pay to go in using light-weight materials for freight-car construction, unless the cost per car can be kept down.

House cars, such as box, auto, furniture, and refrigerated cars, probably will be changed more due to post-war materials than will the other classes of cars. The house part of the structure can be made of welded alloy steel, light metal, molded plywood or of improved wood construction using high-strength glues and timber connectors. There are advantages in each of these materials. Both the molded plywood and wood constructions have some definite advantages that make it probable they will be widely used. A metal box car must have a wood or plastic lining, both for insulation and for nailing dunnage to secure loads, and it seems logical to use such material structurally as part of the panel. Molded plywood is especially suitable in the design of a wagon-top type of

car by using one panel from frame to frame without an independent roof structure. Inside the outer panel would be a glued frame structure and insulation with an inner skin of plywood or wood.

Wood, chemically treated to prevent decay and checking, has also great possibilities for house cars especially when used with water-proof, high-strength glue. It would be possible to make a double-sheathed car, the sheathing set diagonally to cross, all glued together, to make a very strong panel. Roof framing could be glued and double-diagonal planked or metal sheathed. The connections to the metal underframe could be best made with some sort of toothed or ring connectors.

Freight Car Trucks

Freight car trucks will be much altered in the post-war period, continuing the development that was taking place before the war to improve high-speed riding qualities and to reduce weight, particularly unsprung weight. Truck frames will continue to be developed along these lines with light alloy steels and light metals used for the structural parts and with alloy-steel axles to reduce weight. For certain types of cars the truck may be dispensed with and the frame load carried on many axles supported by pedestals from the main frame similar to recent tender bed construction.

The question of bearings for post-war freight cars is an open one. The present standard journal bearing packed with oil and water is quite efficient, having a coefficient of friction of less than .002 at normal running speeds. However, the bearing is lacking in reliability and it is difficult to reduce hot boxes to below one per million car miles. Continuous inspection is required. On the other hand, the bearing is easily changed in a few minutes. The roller bearing, which is being widely advocated for freight equipment, has been used on passenger cars for many years, and its original trouble with broken axles has been overcome by intensive research. The roller bearing has the advantages of great reliability, low lubrication cost and much lower starting friction. It has the disadvantages of high first cost and of being difficult to handle on the road in case of a bearing failure. It is debatable whether the friction at running freight-train speeds, up to 60 or 70 miles per hour, is materially lower with roller bearings, and test results on this point are conflicting. To further complicate the post-war bearing situation, several improved forms of oil-lubricated bearings, both of the capillary and of the disk oiling type, have been developed, and improvements have been made in the standard bearing to eliminate waste grab, the principal cause of hot boxes. On the other hand, the roller bearing can undoubtedly be reduced in price on a mass production basis. The competition will undoubtedly be keen with both types of bearings in use.

Springs, both for carrying and draft gear, will be improved greatly with rubber and hydraulic damping used to reduce shocks under all conditions. Air brakes, which have been so improved in recent years, will continue to be improved. The next problem, which will be intensified by the use of light-weight equipment, is that of obtaining variable braking power for loads and empties. The present empty and load brake automatically actuated by spring height will be widely used.

The possibilities of light-weight freight cars in reducing transportation costs are immense. A reduction of three tons per car would increase the pay load of the average freight train about five to seven per cent and would reduce transportation and locomotive power costs in proportion.

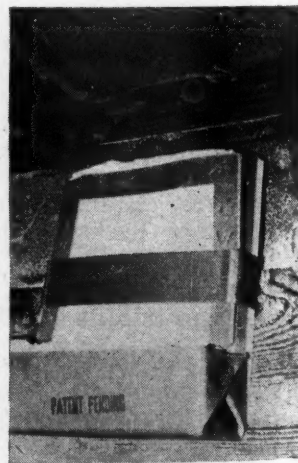
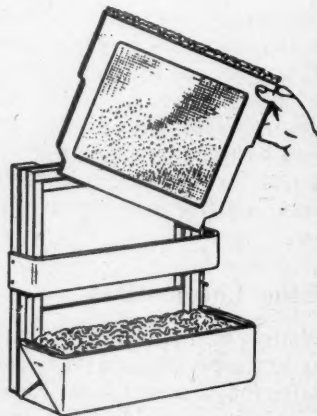
Condensation Extractor Prevents Lading Damage

A CONDENSATION extractor, recently developed and placed on the market by the Albright Condensation Extractor Company, 919 North Michigan avenue, Chicago, is designed, as the name implies, to extract moisture from the air in box cars and prevent condensation damage to shipments of flour, finished steel, tools, furniture, stoves, tin cans and other commodities. Preliminary test runs, made under severe conditions during a development period of about two years, seem to indicate that the device produces the desired results.

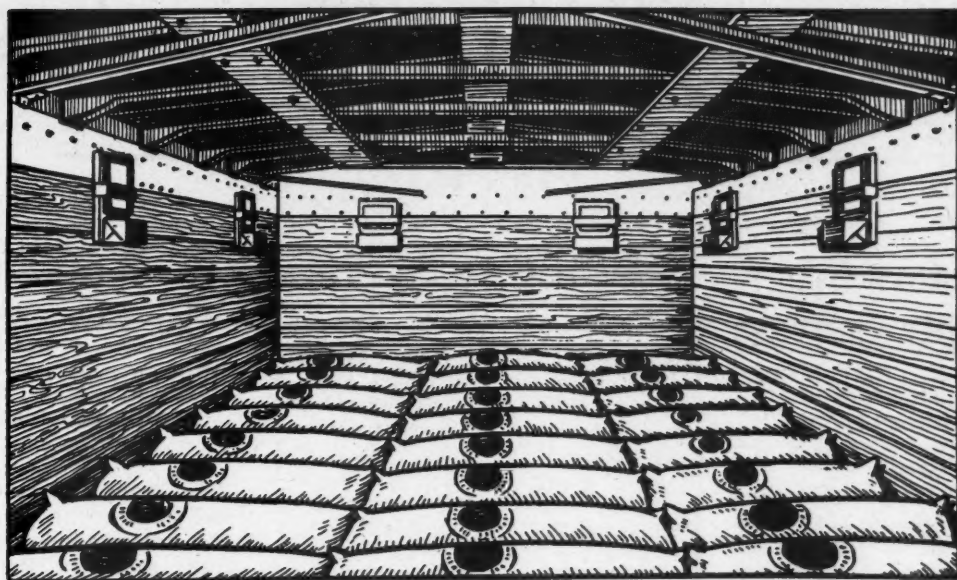
The condensation extractor is made in two parts, a holder and a frame filled with calcium chloride. The holder has a water receptacle at the bottom, filled with crepe wadding to prevent splashing or spilling the accumulated condensate while cars are being switched or in transit. It is constructed of heavy paper cardboard with an asphalt center between plys, and the cardboard itself is waxed outside and inside to prevent water from seeping through. The upper part of the holder is also constructed of heavy material through which nails can be driven to hold the unit in position in the car. Small holes in the top permit the units to be hung from the car roof where desirable. Across the upper part of the front of the holder, a band projects which provides a slot to hold the removable frame containing calcium chloride.

The second part of the unit, or frame, is made of two heavy pieces of waxed paper board, between which are stitched four plys of fine-mesh cheese cloth. The frame is designed so that it opens at the top, dividing and making a pocket of the cheese cloth into which the calcium chloride is inserted. After filling, the opening is closed by stapling so that the calcium chloride cannot get out. The frame is then packed in waterproof, airtight paper to prevent the calcium chloride from reacting with moisture until the unit is ready to be installed.

The holders are usually nailed inside the car just under the roof, four on each side and two at each end. After the holders are in position, and about half an hour before loading the car, the calcium chloride frames are unpacked, the paper taken off and the frames inserted in slots provided at the front of the holders. The number of units needed depends on the product being shipped, number and severity of climatic changes enroute and the distance to destination. The units are made small so



The Albright Condensation Extractor



Albright Condensation Extractor Units in Top of Car of Freshly-Milled Flour

they can be installed throughout the upper part of the car where they are most effective in preventing the formation of condensed moisture from the air.

The purpose of the Albright unit is not to dehydrate, but simply to protect the load from damage which is really what the shipper, railroad and consignee are concerned about. It is a simple, inexpensive unit, designed to protect all shipments that might become damaged as a result of condensation.

The calcium chloride in the frame is hygroscopic and, when moisture is present, immediately absorbs and draws it out of the air, keeping the relative humidity sufficiently low so that condensation will not form in any quantity sufficient to damage the load. Water drawn from the air neutralizes the calcium chloride and drips into the receptacle below. Therefore, at destination, it is easy to determine just how much condensation has occurred. Tests show that this varies up to about $2\frac{1}{2}$ lb. per unit or 30 lb. of condensate for a single trip of a car equipped with 12 units.

Each receptacle has sufficient capacity to take care of all water extracted by the amount of calcium chloride in one unit.

All carloadings are not damageable as a result of condensation, therefore, it is not necessary to install these units in all cars but only in those cars and to protect those shipments needing them. The installation of eight to twelve extractor units, as required, is said to provide sufficient calcium chloride to protect these loads against condensation damage for a period of three or four weeks.

During the last two years, many tests and experiments have been conducted and test results reported to the A. R. Freight Claim Division. Most experimental work has been done on flour, which is loaded hot and therefore unusually susceptible to condensation damage. All other commodities are simple to protect, compared with flour, as the only thing necessary is to prevent condensation from developing in transit because of the change of temperatures in the different areas through which the car moves. Single cars and groups of cars have been loaded at Kansas City and Hutchison, Kans., and Minneapolis, Minn., in the presence of railroad executives and representative millers. The loading temperatures ranged from 2 deg. F. below to 85 deg. F. above zero and the cars were routed through territories subject to widely varying temperatures and climatic conditions. Both shippers and

railway representatives who inspected the cars on arrival at destination reported generally complete protection of the loads against condensation damage.

Wider use of the Albright extractor is expected to help railroads cut down a sizeable percentage of the freight damage payments each year, set up as unlocated damage which amounted to almost \$18,000,000 in 1942.

The price of a car set of the extractor units described is said to be substantially less than the clerical expense involved in the investigation and adjustment of a single claim.

The device, protected by patent applications, is supplied by the Albright company in individual cases containing 12 holders, or 36 frames, each, for ease of shipment and handling.

What We Are Fighting For

"Under *Royal* government in its simplest form, all civil power rests in the hands of one man to exercise as he pleases. Under the *Republican* form the civil power inheres in the people and is exercised under a constitution (written or unwritten) which limits the powers entrusted to representatives chosen by a *part of the people*, who are supposed to embody the true will of the whole and are theoretically the political *elite*. Under such a government certain classes of the people are excluded from political office and from the exercise of the suffrage. Under *Democratic* government there are no such exclusions. All adult citizens have equal opportunity of access to political office and the right of suffrage. In other respects the form is the same as the *Republican*. . . .

"Names are, however, of little consequence provided that they are understood. Whether our system be called 'republican' or 'democratic' it is the same system under either label. The civil power is the same *power* under all three systems and the one supreme question concerning all three, from the point of view of subject or citizen, is whether or not there are *limits beyond which it may not go*. Here we touch the one tremendous problem of *all* government that confronts us today, for it underlies all the others. On it turns the whole question of human freedom. . . .

"The conflict over 'freedom' today is not a conflict of 'democracy' against 'fascism'; it is a conflict of human freedom against the totalitarian state in any form. . . ."

—Thomas F. Woodlock in the *Wall Street Journal*

Railroads-in-War News

AAR Directors in Car Supply Canvass

Note decline in serviceable cars, but find current demands being met

The car supply situation, and the effect on it of prospective allotments of materials for new construction, again was a matter of discussion at the meeting in Washington, D. C., July 30 of the board of directors of the Association of American Railroads. A further decline in serviceable cars was reported, there being 768 fewer available on July 1 than one month before. Nevertheless it was agreed that traffic was still being handled without serious strain on the car supply.

The movement of the grain crop from the Southwest was reported to be about 75 per cent complete, having required an average of around 4,000 cars per day. This requirement was met with such regularity that accumulations of grain at loading points did not develop to abnormal proportions, it was said.

The grain movement from the Northwest, just getting under way, is expected to be handled with equal freedom from serious congestion.

Requirements for refrigerator cars are being met generally, it was explained, though the margin over the demand continues uncomfortably slim. Demands for stock cars also are being met, although they have shown an increase of some 15 per cent over last year. The supply of open top cars, particularly gondolas and flats, was still reported to be extremely tight, and there were suggestions of expedients to cope with the demand for cars of this type.

Among related questions, the prospects for new equipment and materials were considered. It was reported that deliveries of locomotives for the year 1943 probably will be close to expectations, while the tonnage of new rail will probably be around two-thirds of that requested by the Office of Defense Transportation. Deliveries of new cars during the year were estimated at around 32,000.

Director Eastman of the ODT attended the meeting, accompanied by members of his staff, including Brigadier General C. D. Young, deputy director; V. V. Boatner, director of the Division of Railway Transport; and L. M. Nicholson, director of the Division of Storage. Dr. J. H. Parmelee, director of the Bureau of Railway Economics, reported to the meeting the progress of negotiations with government agencies dealing with the railroads' manpower problem.

Subsequent to the meeting of the directors, R. E. Clark, manager of the closed car section of the A.A.R. Car Service Division, expressed optimism over the prospect of meeting demands for box cars during the rest of this year. While there is still some movement of old wheat from the Northwest, he explained, the movement from combines in the Dakotas and Montana is just beginning. As the demand for cars for grain movement from the Southwest drops off, suitable empty cars are being directed into the Northwest in greater numbers to take up the increasing requirements of that section. The flow of box cars from the East into the Northwest is somewhat affected by the demands of the Ohio-Indiana-Illinois grain producing area, where the harvest is going on too, he went on to say, but he expressed confidence that the railroads will be able to move the crop from the Northwest as promptly as from the Southwest, where satisfaction with the car situation and the flow of traffic was generally expressed.

While the box car supply in the Southwest was built up to a considerable extent through the co-operation of roads in the Southeast in reducing the number of such cars on their lines, a further depletion of the supply of sound cars in that territory is not feasible, it was said, in view of growing demands in that region for cars for the movement of tobacco, sugar, phosphate, and other commodities. Cars are being directed into the Southeast from the North Atlantic seaboard and through the New Orleans gateway to meet these needs. The empty box car movement from the East through St. Louis has been restricted, it was explained, to focus this movement into the Northwest where the immediate requirements are most urgent.

Manpower Commission Concedes Maintenance Is Essential

Among important changes in the listings of essential occupations issued by the War Manpower Commission to guide local draft boards in their consideration of deferments which were announced last week was the inclusion of "maintenance and repair of railroad equipment, building, right-of-way, and rolling stock" in the group of preferred occupations. The directions were contained in Bulletin 26-3.

In this connection it was again emphasized that such bulletins are not orders for deferment of men engaged in the occupations listed as essential. In each case it is the responsibility of the local board to determine that the individual registrant is a "necessary man" in his particular occupation, it was explained, and the purpose of the listings is primarily to indicate what occupations are considered to be essential to the war effort.

Travel up Fourfold, Car Supply Reduced

Duncan cites intense use of equipment as measure of carrier collaboration

The handling of nearly four times as much passenger traffic as was carried in 1939, and with less equipment, was described as one of the most remarkable things that the railroads have done since the beginning of the war, by Dr. Carson S. Duncan, economist of the Association of American Railroads, in an address before the midsummer convention of the American Society of Civil Engineers at Los Angeles, Calif., on July 30. He declared that the railroads are moving the greatly increased traffic with 28,478 passenger cars, including Pullmans, or about 150 fewer than on December 1, 1939.

A large number of these cars, Dr. Duncan stated, are constantly engaged in the transportation of the nation's military forces. Military traffic in special trains and special cars alone, he said, accounts for approximately 20 per cent of the total passenger-miles of the railroads.

Dr. Duncan explained that one of the reasons the railroads have been able to handle so much more passenger business with no more passenger cars is better utilization of each unit of equipment. For instance, he said, the average mileage per passenger locomotive per day in 1942 was 206.8, an increase of 12.3 per cent over 1939.

Better organization was given by Dr. Duncan as another reason for the ability of the railroads to handle the record-breaking traffic, but, he added, "organization is an empty shell without thoroughgoing co-operation."

"There is such co-operation in rail transportation to a successful degree," he reported. "Without it, we would be lost in confusion and working at cross purposes. That is the real secret of the rail transportation miracle."

According to the railroad economist, the average passenger train speed in 1939 of 36.9 miles per hour between terminals has not decreased in spite of the tremendous rise in both passenger and freight traffic, which tends to slow down operations.

On the freight side, Dr. Duncan told the civil engineers, the railroads are now handling more than double the traffic of 1939, and are carrying this bigger load with only a little more equipment. On June 1, 1943, they had 1,739,934 freight cars, an increase in ownership of only 5.8 per cent since October 1, 1939.

As in the case of passenger equipment,

Dr. Duncan continued, freight cars and freight locomotives are being made to do more work than ever before. In 1942, he pointed out, the hourly output of transportation by the average freight train was 20 per cent more than in 1939, and the average freight car went 22.5 per cent farther a day and was loaded 18.2 per cent heavier. The average freight locomotive also turned in 17.7 per cent more mileage a day, he said.

For performing this transportation service, Dr. Duncan stated, the railroads are receiving substantially less for hauling a ton of freight one mile. In 1942, he said, the average revenue per ton-mile was only 0.932 cent as compared with 0.973 cent in 1939.

Declaring that figures cannot tell the whole story of the job being done by the railroads in the war, Dr. Duncan went on:

"The war demand for rail transportation is not the same as a peace demand. In normal times, traffic flows in great channels of established trade, the changes coming gradually, the shifts foreseen so as to be amply provided for. War demands are often sudden, unusually exacting. They may have nothing to do with established channels of trade for which the railroad plant was laid down. This means two significant things. There is a requirement for flexibility of service, and there results a voracious demand for equipment. And yet both the civilian and the military needs must be met at one and the same time."

As examples of the new and additional demands made upon the railroads due to war conditions, Dr. Duncan cited the transportation of oil to the East, the all-rail movement of coal into New England, the handling of traffic diverted from the Panama Canal, the hauling of raw sugar from the Gulf Coast to Eastern refineries, and the carrying of millions of troops.

Work Labor Day, Wilson Asks

In a statement issued August 3, Charles E. Wilson, vice chairman of the War Production Board, called upon labor and management engaged in war production to top all previous records in output by working full schedules on Labor Day. Mr. Wilson added that the Navy, Army and Maritime Commission joined in "the request. He went on to appeal to labor-management committees to plan "fitting observances" of the holiday "in such a way as to stimulate the production of arms for victory."

Provide for Employment of Men Released from the Services

Because members of the armed forces who have been disabled in combat are returning home in steadily increasing numbers, while the list of those honorably discharged for other reasons is steadily lengthening at the same time, the War Manpower Commission has issued a statement of general policy on the re-employment and placement of veterans, in which are set forth the aims and methods of operation to be employed by the commission and by other government agencies in this work.

Canada's Rail Men Restive at Wage Limits

Canada has rigid price control—and, also, wages (including those of railroad employees) are "frozen," except that there is a "cost-of-living bonus" which may move upward or downward at the rate of \$1.25 per week for each change of 5 points in the official cost-of-living index number.

Despite the protection of minimum living standards by this bonus, however, organized Canadian railway employees are growing restless at the considerably higher basic wages already paid to railroad employees south of the border; and at the demands of their U.S.A. colleagues for even higher wages. So representatives of the transportation unions in Canada have recently been exerting pressure on the Dominion government for relaxation of the wage "freeze." They want the same pay which their jobs would yield in the U.S.A. Dominion officials as yet have evidenced no enthusiasm for a departure from the control they have so far successfully exercised in the prevention of inflationary prices.

The statement explained that the Re-employment Division of the Selective Service System will continue to be specifically responsible for the reinstatement of veterans in their former jobs, while the United States Employment Service officers will provide registration and placement services to returned veterans who were not employed when inducted or who, upon their return to civil life, do not wish to or are

unable to return to their pre-war positions. The War and Navy Departments will continue to maintain the programs now in effect for rehabilitation and training of disabled veterans, co-operating with the employment service for their registration and placement prior to discharge from hospitals. Appropriate units in the commission's organization will maintain liaison with the Civil Service Commission and other government agencies to keep vacancy information available to men seeking government employment.

a. c. f. Has Popular Exhibit in Philadelphia

The American Car & Foundry Co. on July 24 opened an exhibit which has turned out to be the center of attraction at an "Ordnance for Victory" display on the 8th floor of the John Wanamaker store at Philadelphia, Pa. The demonstration will be continued through the Labor Day weekend.

The exhibit occupies 3,000 ft. of space and is 140 ft. long. One of the principal features is a model railroad system, the property of the Chesapeake & Ohio, with miniature trains which give a visual demonstration of how munitions move from raw material to the finished product stage—stressing the vital connection between the efficient service of the American railroads and production for war purposes.

Spotted throughout the railroad exhibit are representations of the a.c.f.'s many plants, each one showing the product manufactured—tank cars, freight cars for foreign service, and models of the light combat tank being manufactured at the company's Berwick plant. It was not possible to bring an actual tank to the floor of the exhibit but the action of a tank turret with guns mounted is demonstrated. Included



A View of the Model Railroad System at the a. c. f.'s Ordnance Display

also in the exhibit is a diorama showing a desert tank battle such as U. S. and British soldiers fought in North Africa.

"Shot-up" sections of armor plate are also shown, each piece a test plate which has withstood the rigid test of Ordnance requirements. The American Car & Foundry Co. is one of the largest suppliers in the world of armor plate for combat vehicles—filling not only its own requirements but for other manufacturers of combat vehicles as well. Shells made at the a.c.f. Buffalo plant form an impressive part of the display, and sections of airplane landing mats used as emergency landing fields are also on view.

Flags of the United Nations and enlarged photographs showing a.c.f.-built light tanks (many of the photos taken by the U. S. Signal Corps) form a colorful background for the exhibit.

ODT Orders L. & N. To Run More Passenger Trains

The Office of Defense Transportation on August 2 directed the Louisville & Nashville to establish three passenger train schedules daily except Sundays, in each direction, between Knoxville, Tenn., and a point near Elza, where a government project is under construction. Elza is about 26 miles northwest of Knoxville on the line to Cincinnati, O.

This action, embodied in Special Order ODT R-5, was taken to provide transportation for workmen engaged on the government project. The order requires the road to include in each train sufficient coaches to accommodate those who desire to use them, provided that not more than 15 coaches need be used in any one train. It also provides that the service shall be operated "with the minimum number of railroad employees necessary to conduct the operations with safety in accordance with the operating rules of the carrier."

Since the L. & N. did not have the necessary equipment available, the ODT announcement explained, 5 coaches were obtained from the Chicago, Burlington & Quincy and 10 from the New York, Ontario & Western.

Railroads Can Absorb Increased Transfer Charge by Trucks

Contract carrier truckers performing inter-line transfer services can apply to the Office of Price Administration for adjustments in their ceiling rates under the same procedure as was established in May for pick-up and delivery carriers, the OPA explained August 4, announcing its Amendment No. 10 to Revised Supplementary Regulation 14, effective August 10.

As originally issued, this direction applied only to pick-up and delivery carriers who move property from its origin to a line-haul carrier's terminal, or from such a terminal to the ultimate destination, but it is now extended to inter-terminal movements. Increased rates authorized under this procedure cannot be passed on to the consumer, however, it was added, but must be absorbed by the line-haul operators.

The OPA pointed out that most such inter-line contract carriers are small opera-

tors, and many of them have been compelled to cancel their contracts with railroads or other line-haul carriers as their ceiling rates have proved unprofitable. As a result of such cancellations railroads have been forced to obtain equipment and undertake their own inter-line transfer services or to arrange with other and higher priced operators to perform them, it was said further. The confusion and added expense following such cancellations will be eliminated by this new regulation, the OPA asserted.

Great Lakes Coal Movement Is Reported Slow

Producers and forwarders of coal have been urged by Solid Fuels Administrator Ickes to fill their orders for delivery via the Great Lakes this season ahead of "well-protected industrial consumers receiving coal by all-rail."

"As a result of the late opening of navigation this year and production losses resulting from work stoppages, coal shipped via the lakes is nearly 4,000,000 tons behind last year," Mr. Ickes said. "We must utilize all of the lake transportation facilities that can be made available from this time on, if the lake coal docks are to be supplied before the close of navigation. This is particularly true of the docks on

Lake Superior and upper Lake Michigan. . . . It would be practically impossible to meet by all-rail shipments the requirements of areas served by the coal docks" on the upper lakes, he pointed out, so "the coal needed in these areas next winter must be transported before the lakes freeze next fall."

Mr. Ickes explained that lake coal shipments to United States ports this year, as of July 1, amounted to 10,882,908 tons, as compared with 14,304,215 tons on the same date last year, in the face of an increase in estimated requirements.

Nelson Reports Transportation Facilities Equal Demands

The twelfth monthly report on munitions production, issued July 30 by Donald M. Nelson, chairman of the War Production Board, commented thus of transportation: "In the domestic transport picture, the facilities available have continued to perform well in moving the enlarged traffic volume. Co-operation of shippers as well as ODT control measures have assisted in making this realization of near-capacity operations possible. Effective repair operations have returned large numbers of cars and locomotives to service and have reduced bad order reserves to minimum levels."

Materials and Prices

The following is a digest of orders and notices of interest to railways, issued by the War Production Board and the Office of Price Administration since July 26.

Tires and tubes—Amendment No. 43 to Ration Order 1A, effective July 29, provides a plan by which applications for tires, tubes and recapping services for commercial vehicles will be passed upon by tire experts in areas where there are sufficient concentrations of such vehicles to warrant setting up the new procedure. The action is taken to make certain that no replacements are issued for tires or tubes which, in the opinion of an experienced tire man, can be made to give additional mileage. In the selected areas, OPA will designate one war price and rationing board as a truck tire board to handle all applications by truck operators in the surrounding community and will assign to that board the services of an official OPA tire examiner.

Welding equipment—Amendment No. 1 to General Limitation Order L-298, issued July 27, provides that purchase orders for resistance welding equipment received prior to July 27 are exempt from the restrictions on delivery imposed by General Limitation Order L-298.

Welding rod—Direction No. 10 to CMP Regulation No. 5, issued July 28, provides a preference rating of AA-2 for repair shops for the acquisition of welding rod. This rating may be used, regardless of whether the shop carries welding rod as an operating supply. Repair shops may use the rating to buy only as much welding rod in one calendar month as was used during the previous month, up to \$100. However, any shop may purchase up to \$15 worth of welding rod, regardless of the amount used in the previous month. If a repair shop requires more welding rod than it can get by using the AA-2 rating, it may buy the additional rod by: (1) Use of a customers' rating for a specific job. (2) Applying for a rating for a specific amount of welding rod on Form PD-1A; (3) Filing Form CMP-4B and using the rating assigned for all the welding rod it needs if the shop also needs controlled material. Repair shops using the above procedures should note that both customers' ratings and Form PD-1A applications may be used for additional amounts, but that if the Form

CMP-4B application is used, it must be used exclusively by the shop in applying for welding rod. In the latter case, none of the other methods may be used for the purchase of welding rod.

Wiping cloths—General Limitation Order L-312, effective July 28, instructs the processors of industrial wiping cloths to set aside 25 per cent, by weight, of their entire production for military use. This amount of wiping cloths is to be delivered to military agencies or set aside for delivery upon receipt of direct military orders, unless WPB releases such stock or otherwise allocates it. Included in the stock to be earmarked will be all of the processor's colored wiping cloths, meeting Federal specifications, up to 25 per cent of his total production, unless he wishes to set aside or deliver more than this percentage to the military. The order also prohibits any industrial plant or other person from using as a substitute for industrial cloth any new diapers, new towels or any other new textile product other than mill ends and remnants.

Prices

Camelback—Amendment 4 to Maximum Price Regulation 131, effective August 2, provides for the extension of manufacturers' ceiling prices for camelback to grades made of synthetic rubber. Ceilings for synthetic rubber camelback are now the same as ceilings for corresponding grades (A, C and F) of camelback made of crude or reclaimed rubber so that there is no change in the prices of camelback to consumers. Until recently, camelback, which is a rubber material used for retreading or recapping tires, was made only of crude and reclaimed rubber. New grades established by WPB permit use of synthetic rubber as well. As the grades established by WPB apply equally to camelback made of synthetic rubber or of crude or reclaimed rubber, OPA has followed the same practice for pricing purposes.

Canadian lumber—Amendment No. 2 to Maximum Price Regulation No. 368, effective August 4, places sales of Canadian lumber priced in OPA's regulation on Northeastern hardwood on a straight f.o.b. mill basis. Sellers in direct mill shipment transactions henceforth may charge f.o.b. mill prices plus actual transportation

charges from point of shipment to destination. Previously, freight to destination was computed on one of three basing points in Canada: Campbellton, New Brunswick; Mont Laurier, Quebec; or North Bay, Ontario, whichever was applicable. The purpose of establishing f.o.b. mill prices is to aid in broader distribution of Canadian hardwood in the United States. The amendment also establishes the maximum f.o.b. mill price for Canadian hardwood lumber as the domestic maximum f.o.b. mill price, less \$3.50 per m.b.f. The amendment, however, permits the addition to the maximum price of the import tax of \$1.50 per m.b.f. which previously had to be absorbed by the seller. The new basis of the domestic mill price, less \$3.50 instead of \$2, therefore brings no change in the price structure.

Fence posts—Amendment No. 1 to Maximum Price Regulation No. 324, effective July 30, provides that the sellers of red cedar fence posts produced in Missouri, Louisiana and Oklahoma are to use Arkansas maximum prices for their product, with Flippin, Ark., as their basing point. In Revised Maximum Price Regulation No. 324, issued June 26, sellers of posts produced in Missouri, Louisiana and Oklahoma had been provided with Tennessee maximum prices, with Murfreesboro, Tenn., as the basing point. The change to the Arkansas basing point is made by Amendment No. 1 to Maximum Price Regulation No. 324. The amendment also provides that sellers must maintain cash discount and credit terms to buyers which are no less favorable than those allowed on October 1, 1941, except that a cash discount in excess of 2 per cent need not be continued.

Ferrous forgings—Amendment No. 4 to Maximum Price Regulation 351, effective August 4, provides for the adjustment of maximum prices charged by manufacturers of ferrous forgings, similar to those recently provided for manufacturers of machinery and for rebuilders and repairers of construction equipment. To obtain any adjustment, the ferrous forging producer must qualify under specified tests based on the essentiality of his production and its service in the war program. No price adjustments will be granted by OPA under the new provisions if they affect the cost-of-living or cause pressure on the prices for consumer articles.

Gasoline—Amendment No. 119 to Revised Price Schedule No. 88 (Petroleum and Petroleum Products) effective July 30, revokes for the time being, the discount on bulk lot sales of gasoline by tank wagon sellers in New Jersey, Pennsylvania, Delaware, Maryland, Virginia and the District of Columbia on deliveries under 60,000 gals. The requirement that the maximum price on bulk lot sales of gasoline by tank wagon sellers in the District of Columbia and these five states on deliveries of 60,000 gal. and more shall be three-quarters of a cent per gallon less than the reference seller's tank wagon price is not changed, although this requirement will remain on a temporary basis for the time being. The OPA has decided to re-examine the customary price practices in this area. A final determination is expected by September 1.

Lumber—Supplementary Order 50, effective July 27, provides for inserting the standard OPA uniform adjustable pricing provision in all 35 price regulations for lumber and lumber products. "There are two kinds of adjustable pricing," OPA said, explaining the standard procedure. "The first permits a buyer and seller to agree that a price in a sale shall be adjusted up to the ceiling price in effect at time of delivery if the maximum price is increased between the time of sale and delivery. No special permission from OPA is required in adjustable pricing of this kind. The second kind of adjustable pricing relates to re-adjustment of prices to the ceiling in effect at some time after delivery is completed. This type of adjustable pricing cannot be used without special permission from OPA. One situation in which OPA might approve adjustable pricing after delivery is that which exists when an industry knows that a price increase for its products is under discussion in OPA, and when shipments, as a result, might be in a state of suspense as sellers await outcome of the price discussion."

Machine tools—Maximum Price Regulation 1, effective July 26, provides major revisions to strengthen and expand price control over second hand machine tools, including the rental, auctioneer's sales and the reduction of maximum prices

for machine tools which are not rebuilt. The spread between ceilings for rebuilt and guaranteed machine tools and machine tools which are not rebuilt is widened. The maximum prices for rebuilt machines remain the same but a 5 per cent reduction is effected in the prices that can be charged for machine tools which are not rebuilt. A book of prices of machine tools as of March 1, 1941, is specifically incorporated in the regulation and sets out the correct equivalent machine tools to be used in pricing most of the second hand machine tools. An equivalent is to be considered the nearest equivalent new machine tool to the second hand machine tool to be priced. A method also is provided for pricing used machine tools manufactured for the first time after March 1, 1941, which brings the base prices of the more recent second hand tools in line with base prices for others. Specific base prices have been set or methods of computing base prices have been prescribed in some cases where, because of changes in design and material, no really equivalent new machine tool was being manufactured or had a price in effect on March 1, 1941. Specific rental rates and lease rates for used machine tools and extras are established and control over rentals is transferred from Maximum Price Regulation No. 136 (machines and parts and services). The step replaces freeze prices for rentals by definite prices based on stated percentages, which vary with the rental periods, of the maximum prices for the used machine tool involved. Normal depreciation factors under various operating conditions are reflected in the percentages set forth. Restrictions have been placed upon the total amount of rental payments which may be received from any lessee or renter on the same machine tool under the original or successive leases.

Petroleum—Amendment 117 to Revised Price Schedule 88, effective August 1, establishes maximum prices on bulk lot sales of gasoline by tank wagon sellers in New Jersey, Pennsylvania, Delaware, Maryland, Virginia and the District of Columbia on quantities of 10,000 gal. or over at $\frac{1}{2}$ to $\frac{3}{4}$ cent per gallon under full tank wagon ceilings. Tank wagon sellers include both refiners and re-sellers. On single lot tank wagon deliveries of less than 250 gal., a surcharge of 1 cent per gal. may be added to the price applying for single lot deliveries of 250 gal. or more. For returnable steel barrel deliveries, a uniform surcharge is established of 2 cents per gal. over the tank wagon price. These two additions have been generally observed hitherto in this section of the country. The amendment also provides differentials for large quantity bulk lot sales by sellers in Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut and New York. No changes from existing practices are made in this area, and the amendment puts into effect the same differentials observed during the 60 days prior to October 15, 1941. On deliveries of 250 gal. to 9,999 gal., sellers in those states must sell at $\frac{1}{4}$ cent per gal. under the regular tank wagon price; while on deliveries of 60,000 gal. or more, a reduction must be made of $\frac{3}{4}$ cent per gal. from the 250 to 9,999 gal. price. On deliveries of 10,000 gal. up to but not including 60,000 gal., the regular tank wagon price prevails. For tank wagon deliveries in single lots of less than 250 gal., sellers may add 1 cent to the price applying for single lots of 250 gal. or more; while for returnable steel barrel deliveries, 3 cents per gal. may be added to the regular tank wagon price. The quantity price differentials are based on the semi-annual requirements as certified for ration allotments to bulk lot users on January 1 and July 1 of each year.

Poles and piling—Amendment No. 1 to Revised Maximum Price Regulation No. 284, effective August 2, provides specific maximum prices for Western poles and piling. Previously, maximums for most poles and all piling were provided by the General Maximum Price Regulation and were the highest prices individual sellers charged during the month of March, 1942. The new ceiling prices for piling are slightly below those charged in March, 1942, while those for poles generally are at the March, 1942, level. Separate price schedules are provided for Western red cedar, Douglas fir and lodgepole pine poles and piling. Producers of poles and piling of other species or specifications not priced in the amendment are instructed to submit proposed prices to OPA in Washington, D. C., for approval.

Southern Pine—Amendment No. 3 to Revised Maximum Price Regulation No. 19 (Southern

Pine Lumber), effective July 30, authorizes increases in mill maximum prices for Southern pine lumber of \$3 per M.b.m. for No. 1 and "D" grades and of \$4 per M.b.m. for No. 2 grades and lower. Purpose of the increases is to provide prices adequate to permit maximum production of Southern pine, principally in the medium and lower grades. No price increases are provided for upper grades or for timbers. Approximately 70 per cent of all Southern pine production currently is going either directly or indirectly into war needs, and recently production has been declining, principally because of lack of able manpower. Although price has been but a minor factor contributing to the decline in production, an extensive study of the costs and operating margins of the industry indicated price increases were necessary to provide fair and equitable prices, particularly to the smaller mills, OPA said.

Steel—Amendment 17 to Revised Price Schedule 49, effective July 20, permits warehouses and jobbers on sales of iron and steel products to pass on to the buyer actual special delivery service charges less normal freight from shipping point to destination. Special delivery services are defined as shipments by railway express, air express or parcel post. If the special delivery service charge is cheaper than normal freight, the difference between the special delivery charge and normal freight must be deducted from the maximum delivered price for the shipment. In another pricing revision, the amendment authorizes warehousemen and jobbers to use freight rates applicable to less-than-carload shipments in computing freight charges on mixed carload shipments of iron and steel products within their normal marketing areas.

Steel castings—Amendment 7 to Revised Price Schedule 41, effective July 20, requires that quantity differentials be applied to prices on the basis of quantities of castings ordered from one pattern at one time and scheduled for delivery in any one calendar month. Previously, differentials were determined on the basis of the quantity ordered from one pattern at one time, regardless of the length of the production run. Under the Controlled Materials Plan, castings production schedules are limited to deliveries to be made within one calendar month. As a result, where a foundry receives an order calling for deliveries of castings from one pattern in a run that may last many months, it is not permissible for the foundry to complete the whole order in one continuous production run. Usually in the sale of castings, when a larger quantity is ordered, the unit price is lower. By limiting the quantity upon which differentials are calculated to castings ordered from one pattern at one time and scheduled for delivery within one calendar month, maximum prices are raised slightly over what they would be on a larger delivered order stretching over several months.

Trucks, busses and trailers—Amendment No. 96 to Maximum Price Regulation 136, effective August 12, places all new trucks, buses and commercial trailers, which are produced as a result of recent WPB authorization to resume limited production, under price control. The new vehicles were included in the coverage of the machinery price regulation, which already covers automotive parts and accessories. The amendment also revised provisions covering payment of broker's and finder's fees by buyers of new or used machinery and makes uniform the provisions covering all sales of second hand machines which are sold on a delivered or installed basis when new. All sales of trucks, buses and trailers manufactured after August 12, at any level, are covered by this action, which places these items technically in Appendix B of the regulation. This means prices may be calculated under a formula method resulting generally in prices reflecting March 31, 1942, levels. Cars and trucks classified as material handling equipment remain covered by Appendix A of the regulation which provides formula prices generally reflecting October, 1941, prices.

Wire and cable—Amendment No. 4 to Revised Price Schedule 82, effective August 4, provides individual adjustment of ceiling prices for producers and sellers of wire, cable and cable accessories similar to adjustment, provisions recently made available to manufacturers of essential machinery. The action is confined to cases qualifying under rigid tests of essentiality of the seller and the product.

GENERAL NEWS

I. C. C. Lifts More Limits on Trains

"Social gains" which waste labor and equipment are laid to rest

While the Interstate Commerce Commission continues to receive briefs in its Ex Parte No. 156 proceeding, an investigation of its right to issue service orders relieving railroads of the necessity of complying with certain state statutes limiting train lengths, it also continues to exercise that authority, at least to the extent of directing certain roads to disregard union agreements setting limits on train length or tonnage. Two service orders effective July 31 embody such directions.

Service Order No. 140 directs the Atchison, Topeka & Santa Fe and the Union Pacific to operate their trains without regard to agreements with operating unions under which trains operating from Summit, Calif., to San Bernardino have been limited to 50 loads or their equivalent, three empty cars being reckoned as two loads. This order will be effective for the duration of the war, unless sooner terminated by order of the commission, and it provides that, because of its emergency nature, being based upon wartime conditions, it shall not constitute a precedent for peacetime operations. It is required, the commission found, since the restrictive agreements "impede the use, control, supply, movement, and distribution of cars and equipment, and the supply of trains necessary to a full utilization of transportation facilities, and result in a wasteful use of cars and locomotives." The order was the result of the Office of Defense Transportation's request for action to expedite train movements in the affected area, it was indicated.

Service Order No. 141 applies only to the Atchison, Topeka & Santa Fe. It directs that road to operate its trains between Winslow, Ariz., and Seligman, and between Seligman and Needles, Calif., without regard to agreements with operating unions limiting to 2900 tons trains drawn by two locomotives between the point specified. This order likewise was issued at the request of the ODT, and includes similar conditions restricting its life and attributing its origin to the war emergency.

Additional briefs in Ex Parte No. 156 have been filed recently by the operating unions, by the principal Oklahoma and Arizona railways, and by the Attorney General of Oklahoma. The unions in their brief contended that Congress has not delegated to the commission its authority to regulate the length of trains, and that the commission therefore went

beyond its authority in issuing its Service Order No. 85. The commission's authority to regulate "car service," the brief asserted, is limited, and paragraph 16 of section 1 of the Interstate Commerce Act, in which wide emergency regulatory authority has been said to rest, applies only to rerouting traffic as a result of a carrier's disability to handle it.

In a reply to the unions' brief the railroads asserted that the question of the power of the commission to regulate train lengths is not involved, but rather the question is whether it has power, in an emergency, to direct carriers to disregard rules or regulations that obstruct "car service" or cause carrier inability to handle traffic. Service Order No. 85 does not "regulate" the length of trains, this brief contends; on the contrary, it leaves the railroads free to state limitations in that respect.

The brief of the Oklahoma Attorney General declared that the commission had exceeded its jurisdiction in issuing order No. 85, and asserted that the order is unconstitutional and invades the sovereignty of the state.

At the request of the War Department, Commission Mahaffie on July 30 directed that the time for filing briefs in the Ex Parte No. 156 proceeding should be extended to August 20.

Missouri Now Has Bus and Truck "Reciprocity" Law

A bill providing for bus and truck "reciprocity" on commercial vehicles with other states has been signed by Governor Forest C. Donnell of Missouri. Under the law, out-of-state trucks and buses will be permitted to use the Missouri highways without payment of license fees, provided their home state affords similar concessions to similar vehicles from Missouri. The law permits the Missouri Public Service Commission to enter into reciprocal agreements with the officers of other states and the District of Columbia. Passage of the law was requested by the Office of Defense Transportation.

Milwaukee Places Freight Diesel in Operation

The Chicago, Milwaukee, St. Paul & Pacific has placed a second 5,400 hp. freight-passenger Diesel locomotive in operation on the 227-mile gap between electrified zones between Avery, Idaho, and Othello, Wash. The first locomotive of this type was placed in operation in this territory several months ago. The new road Diesel is a four-unit, 5,400 hp. type with a 16 cylinder V type General Motors Diesel generator set in each of the four units. It is 193 ft. long, weighs 856,000 lb. and has a fuel capacity of 4,800 gal. It will release seven or eight steam locomotives.

\$448 Million Net Income in 6 Mos.

But June's net income and net railway operating income did not equal 1942

Class I railroads in the six months ended June 30 had a net railway operating income, before interest and rentals, of \$705,943,271 compared with \$551,683,831 in the same period in 1942, according to the Bureau of Railway Economics of the Association of American Railroads. The same roads in the first six months of this year had an estimated net income, after interest and rentals, of \$448,800,000 compared with \$289,185,666 in the corresponding period of 1942.

In the 12 months ended June 30, the rate of return on property investment averaged 6.06 per cent, compared with a rate of return of 4.19 per cent for the 12 months ended June 30, 1942.

Total operating revenues in the six months of 1943 totaled \$4,346,657,544 compared with \$3,280,759,026 in the same period of 1942, or an increase of 32.5 per cent. Operating expenses in the six months of 1943 amounted to \$2,630,559,409 compared with \$2,157,262,448 in the corresponding period of 1942, or an increase of 21.9 per cent.

Class I roads in the six months of 1943 paid \$914,847,901 in taxes, compared with \$448,283,697 in the same period in 1942. For the month of June alone, the tax bill amounted to \$168,726,888, an increase of \$58,234,719 or 52.7 per cent above June, 1942. Seventeen Class I roads failed to earn interest and rentals in the six months, of which eight were in the Eastern district, two in the Southern region, and seven in the Western district.

In June the estimated net income was \$70,900,000, compared with \$77,690,545 in June, 1942, while the net railway operating income was \$109,655,123, compared with \$118,737,993 in June last year.

Gross revenues in June totaled \$747,364,547 compared with \$623,687,416 in June, 1942, while operating expenses totaled \$451,945,537 compared with \$378,472,014.

Class I roads in the Eastern district in the six months of this year had an estimated net income of \$179,000,000, compared with \$128,272,605 in the same period last year. Their six months net railway operating income was \$281,252,756, compared with \$233,034,401. Gross in the Eastern district in the six months totaled \$1,922,661,500, an increase of 22.1 per cent compared with the same period in 1942, while operating expenses totaled \$1,238,-

(Continued on page 253)

I.C.C. to Study Competitive Bids

Calls for briefs in Ex Parte
No. 158, involving all
new rail securities

The Interstate Commerce Commission on July 31 ordered a general investigation of competitive bidding in the sale of railroad securities, docketing the proceedings as Ex Parte No. 158. The commission's order indicated that the purpose of the investigation is to determine (1) whether competitive bidding shall be required in the sale of securities issued under the provisions of Section 20a of the Interstate Commerce Act, and (2) if competitive bidding is required, to what class or classes of securities the requirement should be applicable and what regulations or conditions should be prescribed to make it effective.

This investigation apparently has developed in part from certain legislation proposed in Congress to require competitive bidding in the sale of all or substantially all railroad securities, to which legislation the commission has expressed its general opposition, as reported in *Railway Age* of June 5, page 1150, and in part from recent finance proceedings before the commission, particularly those involving refinancing undertaken by the Erie and the Pennsylvania for the purpose of reducing fixed interest charges, in which Otis & Co. and Halsey Stuart & Co., Midwestern banking houses, intervened in protest against the railroads' applications for commission approval of transactions negotiated with individual banking houses for the private sale to them of new security issues.

The protesting banking firms contended that the new issues should have been offered through competitive bidding instead of through private arrangements with underwriting firms, in which the roads involved followed a practice of long standing that had been accepted and even defended by the commission. The protesting banking houses endeavored to convince the commission that competitive bidding for the securities which the two roads proposed to issue would have resulted in better terms or a higher price than their private arrangements yielded. Thus, although the commission in permitting the intervention of these protestants in the proceedings had indicated that the general question of the desirability of requiring competitive bidding for all or most railroad securities would not be considered, the arguments of proponents of competitive bidding were put into the record, at least as they applied to the specific issues under consideration.

While the commission gave its approval to the two transactions to which the Midwestern banking firms had objected, it in each case ordered substantial modifications in the arrangements the railroads had made with the underwriting banking firms, indicating in its reports that it did not believe the roads' officers had secured the most favorable terms or prices possible

under the circumstances. The sale of the Erie issue was negotiated with Morgan Stanley & Co., while the Pennsylvania sold its subsidiary's new issue to Kuhn, Loeb & Co. In both cases the transactions were completed, subject to the commission's approval, before applications were filed with the commission for such approval, following long established practice in the private negotiation of security sales.

The commission's legislative committee, in an adverse report upon proposed legislation to require competitive bidding in the sale of all railroad securities, has indicated the commission's view that the circumstances of each particular case should determine whether or not competitive bidding should be required. Such sales, it pointed out, are easy in a rising market, but may be difficult when the market trend is downward. Moreover, it suggested, such a procedure would be impracticable with many types of securities.

In ordering the Ex Parte No. 158 investigation, the commission has invited interested parties to file briefs on or before September 15 and to indicate in their briefs whether or not an oral hearing on the question is desired.

Pacific Ry. Club Meeting

The Pacific Railway Club will hold its next meeting at Hotel Hayward, Los Angeles, Calif., 7:30 p.m., August 12, with its topic of discussion to be "Keeping War Traffic Rolling." Speakers scheduled are Walter C. Sanders, general manager, Railroad division, Timken Roller Bearing Company; E. E. Packard, district master car repairer, Southern Pacific, and, E. F. Price, car distributor, Southern Pacific.

Accident at Warden, Wash.

Seven members of the armed services were killed and twelve were injured on August 4 when a special westbound passenger train on the Chicago, Milwaukee, St. Paul & Pacific sideswiped the locomotive of a local passenger train that had gone beyond the clearance point on a siding at Warden, Wash. Those killed and injured were in a tourist car of the special train. Both locomotives were overturned.

June Earnings in Canada

The two principal Canadian railways reported June earnings and expenses as follows:

Canadian National			
June	1943	Increase	
Gross	\$39,260,000	\$7,471,000	
Expenses	29,892,000	6,049,000	
Operating Net	\$9,368,000	\$1,422,000	
6 Months			
Gross	\$210,484,000	\$41,069,000	
Expenses	165,549,000	34,153,000	
Operating Net	\$44,935,000	\$6,916,000	
Canadian Pacific			
June			
Gross	\$24,698,217	\$3,453,551	
Expenses	20,276,780	3,206,479	
Operating Net	\$4,421,437	\$247,072	
6 Months			
Gross	\$136,231,531	\$15,198,439	
Expenses	115,028,369	15,943,360	
Operating Net	\$21,203,162	-\$744,921	

Ground Cleared for Non-op Strike Vote

Union leaders defer order as
meeting is arranged with
railroad officers

The chief executives of the non-operating railway unions at a meeting in Washington, D. C., August 4 approved taking a strike ballot of their membership. This action was taken on the forty-third day after Economic Stabilization Director Fred M. Vinson stayed the increase of 8 cents an hour recommended for these employees by a National Railway Labor Panel emergency board, but the ballot was not actually ordered, as arrangements had been made previously for a conference with "authorized representatives" of the railroads in a further effort to arrive at some solution of the complicated situation resulting from the evident determination of the union leaders not to accept this decision of the man selected by President Roosevelt to "hold the line" against price and wage increases, considered by him in violation of the spirit and purpose of the administration's policy of stabilization.

The conference with representatives of the railroads was scheduled for August 6, and final action in ordering the strike vote was deferred until then. Arrangements for the conference were perfected at a meeting at the White House August 3 at which union leaders conferred with "government representatives" and others in a further effort to find a way out of the dilemma.

The position of the non-operating union officers was explained by Bert M. Jewell, chairman of their wage negotiation committee, following the meeting at which the formal decision to order the strike ballot was made. In brief, it amounted to a belief that possibilities had been exhausted for arriving at a solution of the situation satisfactory to them through the operation of the machinery set up by the government for the settlement of wartime wage disputes in the industry. This machinery was set in motion without the necessity of first taking a strike ballot, unlike the pre-war procedure in which government intervention became active after such a vote was taken, and was a means of carrying wage increase proposals into the White House without resorting to strike votes in violation of the "no strike" pledge given by union leaders at the beginning of the war. Now that the wartime machinery has failed to produce the outcome expected of it, the unions have determined to resort to the pre-war procedure of taking a strike ballot and then proceeding with negotiations or, if they consider it to their advantage, actually striking, it was explained.

Comment on the possible outcome of this union strategy was varied. It was evident that railway executives were willing to enter into further discussions with the union leaders in the hope that some agreement could be reached that would be satisfactory to them and at the same time fit Mr. Vinson's stabilization ideas, yet it was pointed out that the controversy is between

the unions and Mr. Vinson, with the managements of the roads in an uncomfortable but rather helpless position on the sidelines. In the event that the conference is unproductive and the strike vote is taken, union officers were said to expect the problem then to be passed on to the National Mediation Board, as a part of the pre-war wage controversy machinery, but Mr. Vinson's views on this suggested procedure were not known, though it is known that the board's chairman, Dr. William M. Leiserson, considers the controversy to be between the unions and the stabilization director, and consequently not one calling for the formal intervention of the board.

Back of all discussions of this nature lies the possibility that the President may be persuaded to follow the precedent established in the coal mine "stoppages" and order government operation of the railroads if a strike is actually called. Whether or not the union leaders are prepared to go to such extremes has not been disclosed, but there is evidence that the failure of the White House to find a means of meeting their demands for a wage increase in spite of the "hold the line" policy has been highly disturbing. Comment in "Labor," the railway unions' weekly paper, used such words as "alarming" and "critical" to describe the situation resulting from Mr. Vinson's action, which was termed "bungling" inconsistency. While there seemed to be an undercurrent of belief that the August 6 conference between representatives of the unions and the railroads would not arrive at a solution of the problem, it appeared that the unions were prepared to carry negotiations still further without actually striking, particularly if some means could be devised to set the pre-war mediation machinery in operation in spite of Mr. Vinson's action.

Nine Killed When Train Hits Section Gang

Nine persons, including four boys of high-school age, were killed when a Cleveland, Cincinnati, Chicago & St. Louis passenger train ran into a section gang near Nokomis, Ill., on August 2. According to reports, the men were working with tie tampers and the noise of the tampers prevented the men from hearing the approaching train.

Utah Copper Dispute Settled

A dispute between railroad workers and the Utah Copper Company, which resulted in a walkout on July 7, was settled when the management signed an agreement with the Order of Railway Conductors and the Brotherhood of Locomotive Firemen & Enginemen, recognizing the employees as railroad men under supervision of the Bingham & Garfield. At the same time the Utah Copper Company recognized a National Mediation Board certification of the American Federation of Labor shopcraft unions as bargaining agencies of those workers in its shops engaged in the repair and maintenance of railroad equipment.

The men walked out over demands that the company recognize that they are employees of the railroad and not the copper

company which owns it. The unions also contended that the company's refusal to classify the men as railroad employees caused them to lose the benefits of the Railroad Retirement Act.

Freight Car Loading

Carloading reports were so delayed this week that the Association of American Railroads had not announced the total for the week ended July 31 when this issue went to press.

Loading of revenue freight for the week ended July 24 totaled 883,826 cars, and the summary for that week as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loadings For the Week Ended Saturday, July 24			
District	1943	1942	1941
Eastern	166,468	156,253	189,110
Allegheny	191,207	185,981	198,615
Poahontas	56,906	56,569	59,293
Southern	118,539	119,663	119,131
Northwestern ..	144,832	143,339	144,457
Central Western ..	133,289	124,295	129,993
Southwestern ...	72,585	69,415	56,965
Total Western Districts	350,706	337,049	331,415
Total All Roads	883,826	855,515	897,564
Commodities			
Grain and grain products	58,839	46,330	55,281
Live stock	13,767	10,636	10,044
Coal	177,700	162,287	168,851
Coke	14,110	13,875	13,295
Forest products ..	47,690	54,134	47,431
Ore	88,567	90,324	78,533
Merchandise l.c.l.	97,316	87,588	156,022
Miscellaneous ...	385,837	390,341	368,107
July 24	883,826	855,515	897,564
July 17	877,330	857,146	899,370
July 10	808,630	855,158	876,142
July 3	852,106	753,740	740,359
June 26	760,844	853,418	908,604

In Canada.—Carloadings for the week ended July 24 totaled 66,841 as compared with 67,282 for the previous week and 66,540 for the corresponding week last year, according to the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
July 24, 1943	66,841	38,986
July 17, 1943	67,282	38,596
July 10, 1943	66,068	36,611
July 25, 1942	66,540	35,872
Cumulative Totals for Canada:		
July 24, 1943	1,894,574	1,111,099
July 25, 1942	1,897,885	984,381
July 26, 1941	1,739,844	875,433

State "Barriers" Are Stopping Oil Trucks—Eastman

Expressing regret that "a few state governments" in recent weeks have "tended to revert to the pre-war practice of enforcing state barriers to motor transport—particularly tank truck—operations," Director Joseph B. Eastman of the Office of Defense Transportation on July 30 issued a statement urging state authorities to do everything possible to facilitate the movement of war materials, and particularly of oil, across and within their borders.

"The time has not yet come," he said, "when we can afford to let up in our efforts to squeeze every possible ton-mile of performance out of all our petroleum transportation equipment." Although some 16,000 railroad tank cars have been

freed for long haul movements through the ODT's orders diverting short haul petroleum movements to trucks, his statement added, the need for these cars continues.

Mr. Eastman reported that in one state—unnamed—all oil truck movements have ceased because of a regulation requiring high fees for the operation of vehicles carrying loads above specified limits. Such regulations, he said, though designed to protect state highways, may result in dangerous operations, through the greatly increased movements of the liquids and the accumulation of gases within the tanks, and also in waste of transportation and delay of movements of war materials.

Ickes Asks Bituminous Coal Boards to Stay

Secretary of the Interior Ickes has invited members of the bituminous coal producers' boards set up under the Bituminous Coal Act of 1937, which have been directed to "liquidate" following the expiration of the provisions of that statute, to serve on a volunteer basis on advisory boards which he plans to create for each of the bituminous coal districts. Such boards would be called upon by him in his capacity as Solid Fuels Administrator for advice and information, it was explained.

ODT Appointments

Roy Long, former district manager at Los Angeles, Calif., of the Office of Defense Transportation's Division of Motor Transport, has been appointed manager of the San Francisco region of the same division, with offices at San Francisco, Calif., succeeding Harold C. Arnot, recently appointed director of the division, the ODT announced July 30.

Mr. Long's place at Los Angeles was filled by the appointment of William C. Klebenow, who had been assistant to Mr. Arnot at San Francisco. Other recent appointments in western offices of the Division of Motor Transport include those of Marshall E. Nauman as district manager at Portland, Ore., and Holley Smith as district manager at Seattle, Wash.

OPA to Price New Trucks and Buses Authorized by WPB

All new trucks, buses and commercial trailers that are produced as a result of recent War Production Board authorization to resume limited production of such vehicles for civilian use have been brought under the Office of Price Administration's price control machinery by Amendment No. 96 to Maximum Price Regulation 136, effective August 12, it was announced last week.

All sales at any level of trucks, buses and trailers made after that date are covered by the regulation. Such equipment is placed, in OPA terminology, in Appendix B of the regulation, which means that prices may be calculated under a formula method reflecting generally March 31, 1942, price levels, it was explained. Cars and trucks classed as material handling equipment remain covered by Appendix A of the regulation, however; this provides formula prices generally reflecting October,

1941, prices. Vehicles designed for military use are excepted from the provisions of the order.

In cases where there are no base date list prices, or where substantial changes in specifications have been made since the base date, the regulation provides a formula method of determining non-list prices, and also permits individuals to obtain price adjustments where manufacturing conditions have changed materially. Such formulas require the use of March, 1942, labor and material rates, but permit current costs of subcontracting and sub-assemblies.

Troop Movements Reach New Peak

Mass movements of troops by Pullman during June totaled 874,000, reaching the highest point of the war to date, according to George A. Kelly, vice-president of the Pullman Company. The figure compares with 555,400 troops transported during the comparable period of a year ago, and with the previous high of 840,000 set in March, he said.

The record monthly figure brought total movements in Pullman sleeping cars during the first six months of the year to 4,902,000 as compared with 2,877,600 during the first half of 1942, an increase of 70 per cent, Mr. Kelly said. Troops were transported approximately 5.7 billion passenger-miles during the six-month period, he declared.

"These heavy troop movements, which continue to increase, represent about 65 per cent of all troop transportation by rail," Mr. Kelly said. "At times, they require well over half of all Pullman sleeping and parlor car facilities, with the result that our direct service to the public has a distinct wartime character. Many travel conveniences of the past have been absorbed by military needs, and the average traveler's tolerant understanding of this fact plays an important part in helping us to do our job with maximum efficiency."

\$448 Million Net Income in 6 Mos.

(Continued from page 250)

673,469, an increase of 17.6 per cent above 1942. The Eastern district for June alone had an estimated net income of \$29,000,000 compared with \$33,672,220 in June, 1942. Net railway operating income amounted to \$45,001,038 compared with \$50,621,633.

In the Southern region the six months estimated net income of \$78,300,000 compared with \$57,656,684 in the same period last year. The net railway operating income was \$111,565,674, compared with \$91,066,662. Gross in the Southern region in the six months totaled \$649,972,103, an increase of 39.3 per cent compared with the same period of 1942, while operating expenses totaled \$361,874,267, an increase of 24.5 per cent. In the Southern region for June alone the estimated net income of \$11,300,000 compared with \$12,511,938 in June, 1942. Net railway operating income

amounted to \$15,713,303 compared with \$17,443,165.

Class I roads in the Western district in the six months had an estimated net income of \$191,500,000 compared with \$103,256,377 in the same period last year. Their net railway operating income of \$313,124,841 compared with \$227,582,768 in the same period in 1942. Operating revenues in the Western district in the six months totaled \$1,774,023,941, an increase of 43.1 per cent compared with the same period in 1942, while operating expenses totaled \$1,030,011,673, an increase of 26.6 per cent.

For the month of June roads in the Western district had an estimated net income of \$30,600,000 compared with \$31,506,387 in June, 1942. Net railway operating income amounted to \$48,940,782 compared with \$50,673,195.

CLASS I RAILROADS—UNITED STATES

	Month of June	
	1943	1942
Total operating revenues	\$747,364,547	\$623,687,416
Total operating expenses	451,945,537	378,472,014
Operating ratio—per cent	60.47	60.68
Taxes	168,726,888	110,492,169
Net railway operating income, (Earnings before charges)	109,655,123	118,737,993
Net income, after charges (estimated)	70,900,000	77,690,545
Six Months Ended June 30		
Total operating revenues	\$4,346,657,544	\$3,280,759,026
Total operating expenses	2,630,559,409	2,157,262,448
Operating ratio—per cent	60.52	65.75
Taxes	914,847,901	488,283,697
Net railway operating income, (Earnings before charges)	705,943,271	551,683,831
Net income, after charges (estimated)	448,800,000	289,185,666

I. C. C. Service Orders

In addition to its Service Orders Nos. 140 and 141, reported elsewhere in this issue, the Interstate Commerce Commission has amended and cancelled certain orders and issued other new orders. Service Order No. 139, effective July 31, directed railroads not to weigh on track scales carload shipments of gravel originating at any point in Arkansas or Louisiana and destined to Barksdale Field, Shreveport, La., except that a "limited number" of cars may be so weighed to obtain average weights. This action was required, the order indicated, because the practice of weighing such cars was delaying their movement and contributing to traffic congestion and a shortage of equipment.

Service Order No. 142, effective August 4, imposes similar restrictions on weighing carloads of sand or gravel originating at Juro, Tex. (billing point Texarkana, Tex.), and destined to the Austin Bridge Co., Daingerfield, Tex. Service Order No. 106-A, effective August 3, set aside the requirement of Service Order No. 106 that shipments originating in the United States and destined to points in Mexico must move on straight bills of lading only.

Amendment No. 11 to Service Order No. 80, effective August 1, and issued at the request of the Office of Defense Trans-

portation and the War Food Administration, includes rice within the meaning of the term "grain" as used in the original order. The amendment names as agents of the commission authorized to issue permits for the movement of rice under the provisions of the order C. C. Dehne at Stuttgart, Ark., W. J. Keller at Baton Rouge, La., C. D. Arnold at Crowley, La., Louis Becker at New Orleans, La.; F. H. Fredricks at Beaumont, Tex., and Roy T. James at Houston, Tex. The amendment also names G. D. Hankins as permit agent for flaxseed movements at Fredonia, Kan., and Carl A. Hansen as substitute permit agent for all grain movements subject to the order at Des Moines, Iowa.

Equipment Depreciation Orders

Equipment depreciation rates for three railroads have been prescribed by the Interstate Commerce Commission in recently issued sub-orders in the depreciation rates proceeding. One such order sets the rates for the Apache at 3.48 per cent for steam locomotives, 10.0 per cent for freight cars, 16.67 per cent for passenger train cars, and 3.16 per cent for work equipment. For the Tonopah & Goldfield the rates set are 2.30 per cent for steam locomotives, 6.97 per cent for passenger train cars, and 2.36 per cent for work equipment. For the Washington, Idaho & Montana the figures are 2.13 per cent for steam locomotives, 2.41 per cent for freight cars, 4.89 per cent for passenger train cars, and 3.02 per cent for work equipment.

Freight Commodity Data

The annual compilation of tonnage and revenue statistics by classes of commodities and by regions for the year 1942, prepared by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission, and embracing data disclosed in preliminary reports previously reviewed in *Railway Age*, was made public August 3. This tabulation showed a total of 1,421,187,134 tons of revenue freight originated, of which 17,575,469 tons was l.c.l. The revised figure for total freight revenues is \$6,196,159,997.

The total tonnage of revenue freight originated in 1942 was compared to 1,227,650,428 in 1941 and 1,015,586,028 in 1937. Total revenues were compared to \$4,624,819,604 in 1941 and \$3,513,700,762 in 1937.

Representation of Employees

No change in the representation of yardmasters of the Southern has been directed by the National Mediation Board, as an election ordered to settle a dispute raised by the Brotherhood of Railroad Trainmen resulted in that union losing by a vote of 24 to 44 to the Railroad Yardmasters of America, which had been representing these employees.

The Brotherhood of Railway & Steamship Clerks, Freight Handlers, Express & Station Employees has been designated to represent the clerical, office, station and storehouse employees of the Texas City Terminal, who had not been represented by any organization.

Following an election in which the road's 21 chief train dispatchers were permitted

to vote, though their votes were not counted in view of the carrier's contention that such employees are officials, the American Train Dispatchers Association by a vote of 45 to 2 was selected to represent train dispatchers of the Texas & New Orleans instead of the employees' committee that had been their representative. The board pointed out that the employee or official status of the chief train dispatchers should be determined either by agreement between the union and the carrier or, upon petition, by the Interstate Commerce Commission. The issue was not pressed in this case because the vote of these employees would not have affected the outcome of the election.

By a vote of 10 to 7 the Brotherhood of Locomotive Engineers, which had represented the locomotive engineers of the Detroit & Toledo Shore Line, lost that designation to the Brotherhood of Locomotive Firemen & Enginemen.

Conductors and brakemen of the Northampton & Bath, not previously represented by any organization, have selected the Brotherhood of Railroad Trainmen as their representative, while the road's engineers, also not previously represented, have selected the Brotherhood of Locomotive Firemen & Enginemen.

Grain Moved Smoothly

A steady and even flow of grain to points of storage and consumption without serious car shortages continues to mark this year's movement. Several causes are contributing to the facility with which the crop is being handled, namely, the development of the permit system, more storage space and a reduction in the yield by unfavorable weather which made this year's crop an ordinary one, compared with a bumper crop last year. The storage space was adequate to take care of the surplus grain, the 25 principal Western grain markets having 139,000,000 bu. of storage space compared with 90,000,000 bu. last year, not including storage on farms, in country elevators or temporary bins located on railroad rights-of-way.

By July 8, the Texas and Oklahoma movements, which were a little heavier than last year, had been completed and the Kansas movement, which the hot weather had affected, was well under way. The character of this year's grain movement is reflected in the visible grain supply reported by the Kansas City Board of Trade. On June 19, a total of only 23,054,000 bu. of grain were in storage at this point while on July 24, the total had increased to only 36,837,000 bu. In contrast, the visible supply on June 20, 1942, was 31,958,000 bu. and on July 25, 1942, 39,754,000 bu. The visible supply of wheat alone increased from 21,551,000 bu. of June 19, 1943, to 34,697,000 bu. on July 24, 1943. Also indicative of the less difficult task of handling this year's movement is the fact that during the week ending July 24, the movement was so stabilized that the routing of empty cars to originating railroads was discontinued.

Regardless of the tight box car supply on the Western railroads this year, the grain crop is being moved with a minimum of delay and complaint. Although some

delay has been experienced in furnishing all the cars needed or ordered, it was necessary to pile only 600,000 bu. of wheat on the ground compared with about 20,000,000 bu. last year because adequate storage space was available. Under the conditions prevailing this year it was necessary to embargo only the four principal Southwest markets, Dallas, Tex., Ft. Worth, Amarillo and Enid, Okla., whereas last year it was necessary to embargo practically every important grain market to regulate the flow from the country in accordance with available storage space.

Frisco Seeks to Operate Air Service

The Frisco Transportation Company, a subsidiary of the St. Louis-San Francisco, filed an application with the Civil Aeronautics Board on August 2, seeking authority to operate passenger, mail and freight air service over ten separate routes.

J. R. Coulter, vice-president of the transportation company and chief traffic officer of the railroad, said that a post-war airline network is contemplated to serve principal cities of the nine states in which the Frisco operates, including Missouri, Arkansas, Oklahoma, Texas, Kansas, Tennessee, Mississippi, Alabama and Florida. The Frisco Transportation Company, Mr. Coulter pointed out, operates 3,508 miles of motor freight service and 652 miles of motor bus routes on highways generally paralleling routes of the railroad and the proposed air routes.

"The application," Mr. Coulter continued, "calls for use of helicopters or other types of planes as may be designated by the Civil Aeronautics Board to serve the territory adequately. Daily round-trip service is proposed over each of the ten routes which may be co-ordinated with themselves or with rail, bus and truck operation. The company proposes to operate through co-ordinated air-rail, air-highway or air-highway-rail service, as well as using the proposed air routes as feeder services to other air carriers."

Among other applications for authority to operate post-war domestic air services filed recently with the Civil Aeronautics Board were those of Interstate Transit Lines, a highway operator whose stock is owned by the Union Pacific and the Chicago & North Western; Northeast Airlines, in which the Boston & Maine and Maine Central hold a minority stock interest; and the Denver & Rio Grande Western in its own right.

Northeast Airlines, which previously had filed an application for authority to serve the six New England states and certain points in New York with a service employing helicopters, as reported in *Railway Age* of April 17, page 802, has now asked for the right to transport persons, mail and property between New York and Chicago via Pittsburgh, Pa., or via Buffalo, N. Y., and Detroit, Mich., or via various important cities in Pennsylvania and Ohio.

Interstate Transit Lines has sought authority to transport persons, mail, baggage and light express by helicopter or like aircraft over 26 routes which in general

cover the territory served by the Union Pacific and its C. & N. W. connection into Chicago. Among the principal terminals that would be served by these proposed operations are Chicago, St. Louis and Kansas City, Mo., Omaha, Salt Lake City, Utah, Spokane, Wash., Portland, Ore., and Los Angeles, Calif.

The Denver & Rio Grande Western has applied for authority to operate air service over 15 routes serving various points reached by its rail lines and also extending to Los Angeles.

Equipment and Supplies

LOCOMOTIVES

The CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC is reported to have placed an order for ten steam locomotives of 4-8-4 wheel arrangement with the American Locomotive Company.

The WHEELING & LAKE ERIE is reported to have placed an order for six steam switching locomotives of 0-6-0 wheel arrangement with the American Locomotive Company.

FREIGHT CARS

The TIMKEN ROLLER BEARING COMPANY has placed an order for 25 gondola cars of 70 tons' capacity with the American Car & Foundry Co.

The GREAT LAKES STEEL CORPORATION has placed an order for 30 gondola cars of 70 tons' capacity with the Pressed Steel Car Company.

Supply Trade

Fred S. Ball has been appointed railway engineer of SKF Industries, Inc., Philadelphia, Pa., to succeed Lieutenant-Commander B. W. Taylor, U. S. N. R., who has been assigned to the production branch of the Bureau of Aeronautics, at Washington, D. C.

Worthington Pump & Machinery Corporation, Harrison, N. J., has acquired the Ransome Machinery Company, Dunellen, N. J., as a wholly-owned subsidiary. The Ransome company, designers and builders of machinery since 1850, manufacture concrete mixers, road paving equipment, welding positioners and turning rolls.

The Baldwin Locomotive Works and its wholly owned subsidiaries awarded sub-contracts amounting to approximately \$65,000,000 on war orders in the first six months of 1943, an increase of 15 per cent over 1942, according to Ralph Kelly, president. A total of 1035 sub-contractors located in 28 states and the District of Co-

lumbia shared in the awards. Mr. Kelly stated that the present backlog of orders, 11 per cent above that of a year ago, means higher production schedules for the last half of 1943 and throughout 1944, and indicated a substantial increase in sub-contracting for that period.

Thomas W. Pettus, sales manager of the **National Bearing Metals Corporation**, St. Louis, Mo., has been elected vice-president in charge of sales. Mr. Pettus



Thomas W. Pettus

was born in St. Louis on October 3, 1905, and was graduated from Princeton University in 1927. He entered the employ of the National Bearing Metals Corporation on January 1 of the following year and from 1931 to 1941 served as a salesman. In the latter year he was placed in charge of priorities and in 1942 he was promoted to sales manager, which position he has held until his recent election.

C. L. Huston, Jr., assistant to the president and member of the board of directors of the Lukens Steel Company, has been named president of the company's subsidiary, **Lukenweld, Inc.**, to succeed **Everett Chapman** who has resigned to establish his own business as a consulting engineer. Mr. Huston was graduated from Princeton University in 1928. He joined the American Rolling Mill Company, in Middletown, Ohio, in 1929, serving for five years in the metallurgical department and for five years on the company's personnel relations staff in public relations, employment and training work. In 1939 he resigned as assistant staff supervisor of employment in charge of introductory training for the American Rolling Mill, to join the Lukens Steel Company as director of personnel relations.

E. A. Condit, vice-president of the **Rail Joint Company**, has been elected president to succeed **V. C. Armstrong**, who becomes chairman of the board, and **Alex Chapman**, western sales manager, has been elected vice-president. Mr. Condit joined the engineering department of the Rail Joint Company in 1902. He went to Pitts-

burgh, Pa., for the company in 1905 and was appointed sales manager, with headquarters in New York, in 1918. He was elected vice-president in 1925. Mr. Armstrong entered the sales department of the company in 1903. He was appointed sales manager in 1906, and elected president in 1917. Mr. Chapman began service with the company in 1903 in the engineering and inspection departments. He joined the company's sales office at Chicago in 1914 and was appointed western sales manager in 1938.

Ralph J. Cordiner has been appointed assistant to the president of the **General Electric Company**. Mr. Cordiner, who resigned in June as vice-chairman of the War Production Board, was formerly president of Schick, Inc., of Stamford, Conn., and, prior thereto, manager of the appliance and merchandise department of the General Electric Company.

OBITUARY

J. Fred Comee, sales representative of the **Standard Railway Equipment Manufacturing Company**, Hammond, Ind., died on July 23.

Construction

CHICAGO, BURLINGTON & QUINCY.—This road has awarded a contract to the **Lovring Construction Company**, St. Paul, Minn., for the rebuilding of its passenger station at Burlington, Iowa. The work will be completed at an estimated cost of about \$300,000.

ERIE.—This road has recently awarded contracts for the construction of lodging facilities at Kent, Ohio; the extension of a passing siding and installation of new turnouts at Atlantic, Pa., and the construction of two interchange tracks involving incidental signal changes at Shennango, Pa., at a total estimated cost of \$110,800.

NEW YORK CENTRAL (BIG FOUR).—This road is constructing two wet cinder pits, 24 ft. in diameter and an engine washing platform 110 ft. long at Bellefontaine, Ohio. This work, together with track changes and the installation of sewer and water lines, will cost about \$73,000. A contract for the construction of the cinder pits and washing platform was awarded **Smith & Johnson**, Indianapolis, Ind.

WAR DEPARTMENT.—The U. S. Engineer office, Chicago, has awarded a contract, amounting to more than \$50,000 and less than \$100,000, to the **Miller-Davis Company**, Kalamazoo, Mich., for the construction of railroad track and other facilities, including storm sewer drainage in Michigan. The U. S. Engineer office, Los Angeles, Cal., has awarded a contract, amounting to less than \$50,000, to **T. A. Kvale**, Ojai, Cal., for the relocating of a railroad track in California.

Abandonments

CHESAPEAKE & OHIO.—This company has applied to the Interstate Commerce Commission for authority to abandon a line from a point near Forest, W. Va., to a point near Woodpeck, 2.03 miles.

ILLINOIS CENTRAL.—With Commissioner Miller dissenting in part, Division 4 of the Interstate Commerce Commission has authorized this road and its wholly owned subsidiary, the **Chicago, St. Louis & New Orleans**, to abandon operation of and to abandon, respectively, a line from Barlow, Ky., to East Cairo, 7.13 miles, but has denied such authority with respect to the connecting segment of line from Barlow to Kevil, 8.95 miles. The division majority, Commissioners Porter and Mahaffie, took the position that the expense of restoring an 1,172-ft. ballast deck trestle, which was burned in August, 1942, would not be justified by the anticipated traffic, and approved the abandonment of the portion of line including the trestle, though they found that the rail transportation needs of territory depending on the other segment of the line sufficient to justify its continued operation. Commissioner Miller agreed with the latter finding, but did not agree that the segment including the trestle should be abandoned, contending that the cost of restoring the trestle might be distributed over a 15-year period, while the costs of diverting bridge traffic to a longer alternate route were underestimated, so that instead of the estimated net saving to the road increased expense would result, in his opinion.

SOUTHERN.—Division 4 of the Interstate Commerce Commission has authorized this road's wholly owned subsidiary, the **Carolina & Tennessee Southern**, to abandon its entire line from Bushnell, N. C., to Fontana, 13.96 miles, since water impounded by a Tennessee Valley Authority dam will submerge the line, while the expense of relocation would not be warranted by the traffic available.

SOUTHERN.—This company has applied to the Interstate Commerce Commission for authority to abandon a 23.7-mile segment of its **Murphy branch**, extending from a point near Bryson, N. C., to a point near Wesser Creek, which will be inundated by the reservoir formed by the Fontana dam of the Tennessee Valley Authority. An alternate new line will be built by the TVA.

UNION PACIFIC.—This company and the **Oregon-Washington Railroad & Navigation**, lessor, have been authorized by Division 4 of the Interstate Commerce Commission to abandon operation of and to abandon, respectively, a part of a branch line from Kent, Ore., to Shaniko, 17.2 miles, but that part of the application that asked authority similarly to abandon another part of the branch from Biggs, Ore., to Kent, 52.5 miles, has been denied, on the ground that grain produced in its territory cannot successfully be transported otherwise.

Financial

AKRON, CANTON & YOUNGSTOWN.—Consolidation.—An application has been filed with the Interstate Commerce Commission for its approval of the consolidation of the properties of the Akron, Canton & Youngstown Railway and the Northern Ohio, lessor, to form the Akron, Canton & Youngstown Railroad, pursuant to the plan for reorganization approved by the commission and ordered put into effect by the federal district court.

BANGOR & AROOSTOCK.—Authentication of Bonds.—Division 4 of the Interstate Commerce Commission has further modified its previous orders authorizing this road to procure the authentication and delivery of consolidated refunding mortgage 4 per cent gold bonds to limit to \$7,992,000 the total amount thereof.

CENTRAL OF GEORGIA.—Promissory Notes.—Division 4 of the Interstate Commerce Commission has authorized this road to issue 10 promissory notes in the total amount of \$1,368,947 in evidence of, but not in payment for, the unpaid balance on certain equipment contracts, to conform to tax law requirements.

DELAWARE & HUDSON.—Bond Plan Approved.—A three-judge federal court in New York has approved the plan of this company for meeting the maturity of an issue of \$50,000,000 in bonds which fell due last April 1. Under this plan, previously approved by the I. C. C. and more than two-thirds of the bondholders, the company is to dispose of its holdings of marketable securities during the next three years and, from the cash thereby obtained, make a payment of 10 per cent of the face value of the matured bonds. The balance of the cash thus acquired is to be placed in a sinking fund for this bond issue, the maturity date of which is set forward to 1963.

ERIE.—Acquisitions.—Purchase by this company of the properties of the New York & Greenwood Lake, the Caldwell, and the Roseland has been approved by Division 4 of the Interstate Commerce Commission. The Erie already controls the other companies through ownership of capital stock, and proposes to dissolve the subsidiary companies to simplify its capital structure. The application of the subsidiary companies to effect the sale was dismissed by the division on the ground that such approval need not be sought by a vendor.

LA SALLE & BUREAU COUNTY.—Trackage Rights.—Division 4 of the Interstate Commerce Commission has authorized this road to acquire trackage rights over the line of the Chicago & North Western from LaSalle Junction, Ill., and Churchill, 0.166 mile, and the line of the New York Central from Churchill to Ladd, 2.31 miles, in order to effect speedier and less costly freight interchange.

MISSOURI PACIFIC.—Reorganization.—The District Court at St. Louis, Mo., on

July 29, sent back to the Interstate Commerce Commission the latter's reorganization plan which it had once approved, because of developments since the approval two years ago. The court had in mind the United States Supreme Court decision in the Chicago, Milwaukee, St. Paul & Pacific reorganization case, increased earnings and the fact "that the plan was rejected by 6 of 16 classes of creditors and stockholders." A compromise plan has been suggested which contemplates distribution of \$54,000,000 in cash in excess of that approved by the I. C. C. in the pending reorganization plan and also provides for somewhat "better" treatment of the various security holders.

PENNSYLVANIA.—Bond Issue.—The Interstate Commerce Commission, after consideration of the request of Otis & Co., a Midwestern banking firm, intervening as a stockholder of this company, for a rehearing in the proceeding in which Division 4 of the commission authorized this road's subsidiary, the Pennsylvania, Ohio & Detroit, to refinance a \$28,483,000 bond issue, as reported in this column last week, has denied the request, allowing the transaction to be completed. The 4½ per cent bonds of the subsidiary company, series A, have been called for redemption on October 1, following this decision of the full commission affirming the division's order.

Oral arguments before the commission on July 30 preceded its decision. Counsel for Otis & Co. contended that a rehearing was in order because, among other points, certain of the road's directors also are directors or officers of firms participating in the purchase or distribution of the new bond issue. Counsel for the Pennsylvania pointed out that the road had completed the sale of the new bond issue upon publication of the division's order authorizing it, so that the question was moot. In affirming the division's order in this proceeding, however, the commission gave notice that it had ordered on July 31 an investigation of the question whether or not it should require competitive bidding in the sale of any or all classes of railway securities.

SEABOARD AIR LINE.—Underlying Committee Accepts Master's Plan.—The underlying bondholders committee of the Seaboard Air Line is reported to have decided to accept the reorganization plan filed on July 20 by Tazewell Taylor, special master "with such adjustments as the committee may later approve," and to have called on bondholders not agreeing to this decision to withdraw their bonds from deposit by August 20.

The committee reported that as of July 15 it represented \$19,710,000 out of \$31,015,000 principal amount of Seaboard underlying bonds.

SOUTHERN.—Acquisition.—This company has applied to the Interstate Commerce Commission for authority to acquire and operate a 15.34-mile line from a point near Bryson, N. C., to a point near Wesser Creek constructed by and at the expense of the Tennessee Valley Authority in lieu of a segment of this road's Murphy branch to be flooded by a reservoir.

Railway Officers

EXECUTIVE

Eric A. Leslie, whose appointment as vice-president and comptroller of the Canadian Pacific at Montreal, Que., was announced in the *Railway Age* of July 24, was born in Montreal on July 11, 1895. His first railroad experience was with the Canadian Pacific in 1913 during a summer vacation from McGill University. In 1915 he was a transportation student special apprentice at the Angus shops in Montreal. He was graduated from McGill with a B.S. degree in railway transportation in 1916 and subsequently joined the Army, serving in Canada, England and France. In 1919 he returned to the Canadian Pacific as a clerk in the general manager's office in Montreal and later in the same year he became secretary to the general manager. He then served successively as chief clerk to the superintendent of the Toronto Terminals division, chief joint facilities accountant,



Eric A. Leslie

auditor of disbursements, and chief accountant in the joint facilities bureau at Montreal. In 1928 he was appointed assistant comptroller and in 1932 he was advanced to the position of deputy comptroller, becoming comptroller in 1935, the position he held at the time of his recent promotion. Mr. Leslie, who is also vice-chairman of the accounting division, A.A.R., in 1938 prepared the data on unification of the Canadian railways presented to the Canadian Senate's Committee reporting on means for relieving the Dominion's railway situation.

M. A. Metcalf, assistant to the president of the Canadian National, with headquarters at Montreal, Que., has been appointed executive assistant to the president, succeeding **E. P. Mallory**, whose death on July 8 was reported in the *Railway Age* of July 17, page 122. **G. W. V. Shaw**, assistant secretary at Montreal, Que., has been appointed office assistant to the president, with the same headquarters.

Mr. Metcalf was born at Toronto, Ont., on December 23, 1895. He entered railway service in 1910 as junior clerk in the office of the superintendent of the Canadian Northern (now C. N. R.) and in 1917 he became secretary to the general manager



C. N. R. Photo

M. A. Metcalf

of that road. Three years later he became secretary to the vice-president in charge of operation and construction. Following the consolidation of the Canadian Northern and other lines into the Canadian National, Mr. Metcalf was, in 1922, appointed secretary to the operating vice-president of the system, with headquarters in Montreal. He was secretary to the president of the C. N. R. from 1934 to 1936. On the latter date he was promoted to assistant to the president, the position he held at the time of his recent appointment. In addition to his work in the transportation field, Mr. Metcalf has been prominently identified with problems of civic government in Canada and is now serving his third year as mayor of the town of Mount Royal.



C. N. R. Photo

G. W. V. Shaw

Mr. Shaw entered the passenger department of the Grand Trunk in 1916 and served as secretary to the passenger traffic manager and in various other capacities until late in 1922, when the Canadian National system was organized. At that

time he joined the staff of the chairman and president and after serving as assistant chief clerk he was appointed assistant secretary to the president. In 1934 he was appointed secretary to the chairman of trustees and later acted as chief clerk to the chairman and president. He served as assistant secretary of the company since 1938.

FINANCIAL, LEGAL AND ACCOUNTING

John E. Shannon, general accountant of the Atlantic Coast Line has been appointed auditor of disbursements, with headquarters as before at Wilmington, N. C., succeeding E. L. Potter, deceased. Mr. Shannon was born on January 12, 1895, at Savannah, Ga., and entered railroad service on July 5, 1911, as waybill assorter in the office of the auditor freight receipts of the Atlantic Coast Line. He subsequently served as mail clerk in the purchasing department and stenographer in the comptroller's office. From April 7,



John E. Shannon

1917, to July 24, 1919, he was with the United States Armed Forces, serving in France and Belgium for fourteen months. Upon returning to the United States, he re-entered the service of the Atlantic Coast Line as bookkeeper and statistician in the comptroller's office, subsequently becoming traveling auditor in the auditor of disbursement's office, being transferred to station agencies in December, 1925. Mr. Shannon later served as chief clerk, auditor station accounts, and chief clerk to the comptroller. On January 1, 1936, he was appointed assistant auditor of disbursements, and on May 1, 1943, he became general accountant at Wilmington, the position he held at the time of his recent promotion.

OPERATING

H. J. Palmer has been appointed trainmaster, and **G. E. McHugh**, assistant trainmaster, of the Electric, Harlem and Putnam divisions of the New York Central.

E. M. Prouty has been appointed assistant night superintendent of the Wyom-

ing division of the Union Pacific, with headquarters at Cheyenne, Wyo.

George E. Rollins, whose appointment as superintendent transportation of the Atlantic Coast Line, with headquarters at Savannah, Ga., was announced in the Rail-



George E. Rollins

way Age of July 17, was born on September 10, 1887, at Sumter, S. C. Mr. Rollins entered railroad service on September 23, 1908, as a brakeman of the Atlantic Coast Line, and in November of that year was appointed yard clerk at South Rocky Mount, N. C. From February, 1910, to June, 1918, he served successively as trainman, conductor, night yardmaster, and as general yardmaster, successively at Sumter, S. C., and Columbia, S. C. In the latter year he was appointed terminal trainmaster at Florence, S. C., and in 1924 he became trainmaster of the Norfolk district, becoming assistant superintendent of the Tampa district in 1925. Mr. Rollins was appointed superintendent of the Lakeland district, with headquarters at Dunnellon, Fla., in November, 1927, and in June, 1933, due to the consolidation of districts, he became trainmaster of the Tampa district, being transferred to the Jacksonville district, with headquarters at Sanford, Fla., in September, 1934. In March, 1936, Mr. Rollins was promoted to superintendent of the Jacksonville district at Sanford, in which position he served until his recent appointment as superintendent transportation at Savannah.

E. Marksheffel, superintendent of terminals of the Union Pacific at Los Angeles, Cal., has been promoted to general superintendent, with headquarters at Salt Lake City, Utah. **H. H. Lorson**, special representative, has been advanced to temporary superintendent of terminals, with headquarters as before at Los Angeles, succeeding Mr. Marksheffel.

E. Hicks, assistant superintendent, nights, in charge of transportation of the Nebraska division of the Union Pacific, has been promoted to assistant superintendent of the First and Second subdivisions and branches, with headquarters as before at Omaha, Neb. **C. A. Laughlin** has

been appointed assistant superintendent, nights, in charge of transportation of the Nebraska division, succeeding Mr. Hicks.

E. P. Olson, superintendent of the Central division of the St. Louis-San Francisco, with headquarters at Ft. Smith, Ark., has returned from a leave of absence. **Quin Baker**, who has been acting superintendent of that division, has been assigned to other duties.

H. K. Buck, trainmaster of the Illinois Central at Fulton, Ky., has been promoted to assistant superintendent in charge of the Memphis Terminal, with headquarters at Memphis, Tenn., succeeding **J. R. Burns**, who has been assigned to other duties. **J. M. O'Connor**, assistant trainmaster at Waterloo, Iowa, has been promoted to trainmaster at Fulton, replacing Mr. Buck.

Richard E. Johnson, assistant superintendent of the Cedar Rapids division of the Chicago, Rock Island & Pacific, has been promoted to superintendent of the Joint Texas division, operated by the Rock Island and the Fort Worth & Denver City, and also superintendent of the Burlington-Rock Island, with headquarters at Houston, Tex., succeeding **A. G. Whittington**, who has been granted a leave of absence.

ENGINEERING AND SIGNALING

Leland Clapper, assistant chief engineer of the Duluth, Missabe & Iron Range, has been promoted to chief engineer, with headquarters as before at Duluth, Minn., succeeding **Elbert H. Dresser**, whose recent death is reported elsewhere in these columns.

William H. Jahn, assistant valuation engineer of the Northern Pacific, has been promoted to valuation engineer, with headquarters as before at St. Paul, Minn., succeeding **Howard M. Stout**, who has retired. Mr. Stout was born in Indiana on July 31, 1873, and in 1906 went with the Spokane, Portland & Seattle. In 1908 he went with the Northern Pacific in the engineering department and in 1930 he was promoted to assistant valuation engineer. In October, 1941, Mr. Stout was advanced to the position he held at the time of his retirement.

TRAFFIC

J. E. Bailey, general freight agent of the Missouri Pacific lines, with headquarters at Houston, Tex., has retired on account of illness.

H. R. Thompson has been appointed general agent of the Alton, with headquarters at Memphis, Tenn., a newly-created position.

Roy A. Warren, general agent of the Delaware, Lackawanna & Western at St. Paul, Minn., has been transferred to Seattle, Wash., replacing **J. E. Gatham**, whose

death on June 30 was reported in the *Railway Age* of July 10.

A. L. Suave, assistant general agent of the Canadian Pacific at Ottawa, has been appointed to fill the newly created position of general agent in charge of military and other special traffic. **Forrest D. Appleton**, now passenger agent at Ottawa, will succeed Mr. Suave as assistant general agent.

Harry W. Shields, general agent of the Spokane, Portland & Seattle at Spokane, Wash., has been promoted to assistant to the general freight and passenger agent, with headquarters at Portland, Ore., a newly-created position. **J. C. Wright**, general agent at Astoria, Ore., has been transferred to Spokane, succeeding Mr. Shields.

Harry Edward Huntington, whose retirement as freight traffic manager of the Baltimore & Ohio, with headquarters at Rochester, N. Y., was announced in the *Railway Age* of July 10, was born on July 23, 1869, at New Lisbon, Wis. Mr. Huntington entered railroad service in 1887 as



Harry Edward Huntington

a ticket agent of the Minneapolis, St. Paul & Sault Ste. Marie, and served in that capacity until 1894, when he became chief clerk to the general passenger agent. In 1899 he went with the Baltimore & Ohio as city passenger agent, and in 1902 he left that road to become division passenger agent of the Erie, serving in that capacity successively at Elmira, N. Y., Cincinnati, Ohio, and Buffalo, N. Y. In 1908 he became general passenger agent of the Buffalo, Rochester & Pittsburgh (now Baltimore & Ohio), with headquarters at Rochester, and in 1929 he became assistant traffic manager with the same headquarters. In 1932 Mr. Huntington was appointed freight traffic manager of the Baltimore & Ohio, serving in that position until his recent retirement.

Everett D. Davis, whose appointment as freight traffic manager of the Baltimore & Ohio, with headquarters at Rochester, N. Y., was announced in the *Railway Age* of July 10, was born on January 18, 1892, at Elizabeth, N. J., and received a B. A. degree from Yale University in 1914. Mr.

Davis entered railroad service in 1914 as a clerk in the traffic department of the Buffalo, Rochester & Pittsburgh (now Baltimore & Ohio), subsequently being transferred to the operating department, later, returning to the traffic department.



Everett D. Davis

In March, 1916, he was appointed soliciting freight agent, and in December of that year he became division freight agent. In 1917, in addition to his railroad duties, Mr. Davis became manager of the Buffalo, Rochester & Pittsburgh Warehouse, and in 1920 was appointed president of the B. R. & P. Warehouse. In 1922 he was appointed assistant general freight agent of the Buffalo, Rochester & Pittsburgh, and in 1923 he was advanced to general freight agent, becoming assistant freight traffic manager in 1928. In 1929, after serving as sales manager of the Rochester & Pittsburgh Coal Company for a short period, he returned to the Buffalo, Rochester & Pittsburgh as freight traffic manager. Mr. Davis became assistant freight traffic manager of the Baltimore & Ohio in 1932 and remained in that position until his recent appointment as freight traffic manager.

Harold L. Smith, whose promotion to assistant to the freight traffic manager in



H. L. Smith

charge of rates and divisions of the Southern Pacific, with headquarters at San Francisco, was reported in the *Railway Age* of July 24, was born at San Jose, Cal., on November 8, 1890, and entered

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SERVING TO THE UTMOST



Over its 15,000 miles of line from New Orleans to Oregon, bucking the snows of the Donner Summit or driving through the grilling heat of the Salton Sea, the Southern Pacific is totally mobilized for war. Serving more military and naval establishments than any other railroad, and converging as it does upon the Pacific Coast—our springboard against Japan—the war trains must go through!

How successfully they are going through is shown in three sentences taken from this road's Annual Report, dated February 18th, 1943: "The net ton-miles of revenue freight car-

ried increased 45.60%, compared with 1941. Revenue passenger-miles increased 109.54%.... Despite many operating difficulties, the traffic was moved without widespread congestion or prolonged delays."

Through recent years we have been privileged to supply to the Southern Pacific a number of Lima-built Super Power Steam Locomotives. Handled with typical Southern Pacific operating skill, these modern locomotives are now serving their road and their country to the utmost.

LIMA LOCOMOTIVE WORKS



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railway service on February 7, 1907, as a clerk of the passenger accounting department of the Northwestern Pacific at San Francisco, subsequently serving in various other departments, including the freight accounting department. In 1920 he was promoted to chief clerk of the freight and passenger accounting departments, with the same headquarters, and on January 1, 1927, he was advanced to special accountant of the freight accounting department of the Southern Pacific at San Francisco. In January, 1930, Mr. Smith was promoted to chief of the Divisions bureau, and six years later he was advanced to chief clerk of the general freight department, with the same headquarters. On August 1, 1937, he was promoted to assistant general freight agent, and in 1940 he was placed in charge of the Commerce bureau, handling formal rate cases before the Interstate Commerce Commission. His new appointment was effective July 15.

MECHANICAL

G. E. McKinney has been appointed electrical engineer of the Erie, with headquarters at Cleveland, O., succeeding **W. S. James**, deceased.

SPECIAL

A. C. Bradley, assistant to the general manager of the Pacific Electric, has been promoted to manager of personnel, a newly-created position, with headquarters at Los Angeles, Cal. The position of assistant to the general manager has been abolished.

Perry McCart, who resigned in 1915 as general solicitor of the Chicago, Indianapolis & Louisville (Monon) has been appointed special representative of the chief executive officer of that road, with headquarters at Chicago.

C. Miles Burpee, managing editor of the *Railway Engineering & Maintenance Cyclopedic*, a Simmons-Boardman publication, has been promoted to associate editor of *Railway Age*, in charge of purchases and stores, with headquarters as before at Chicago. Mr. Burpee was born at Edmunston, N. B., on August 18, 1900, and was graduated from the University of New Brunswick in 1923. His first railway experience was gained during the summers of 1918 to 1920, when he was employed in the maintenance of way department of the Canadian National. During the summers of 1921 to 1923 he was employed by the department of public works of the Province of New Brunswick as resident engineer on highway construction. In the following year he was associated with Marquette University, Milwaukee, Wis., as instructor of surveying, descriptive geometry and drawing. On July 1, 1924, he entered the employ of the Delaware & Hudson as bridge and building supervisor on the Pennsylvania division, and later served in the same capacity and as track supervisor on the Susquehanna division. In 1928, he was appointed bridge and building master of the Saratoga division, and in

April, 1930, he was promoted to purchasing engineer. In May, 1933, he was advanced to research engineer in the purchasing department, with headquarters at Albany, N. Y., his duties consisting of the application of research in connection with the purchase and use of materials as well as the purchase and supervision of inspection of all forest products. Mr. Burpee has been active in the Purchases & Stores division of the Association of American Railroads, the American Wood-Preservers' Association, of which he is a past director, and the American Railway Bridge & Building Association, of which he was president in 1937-38.



C. Miles Burpee

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OBITUARY

Charles Shalter Krick, who retired as vice-president of the Eastern region of the Pennsylvania in 1936, died on July 29 at the age of 77.

Elbert H. Dresser, chief engineer of the Duluth, Missabe & Iron Range, with headquarters at Duluth, Minn., died at his home in that city recently.

George R. Hecker, general passenger agent of the Missouri-Kansas-Texas, with headquarters at St. Louis, Mo., died at his home in University City, Mo., on July 27.

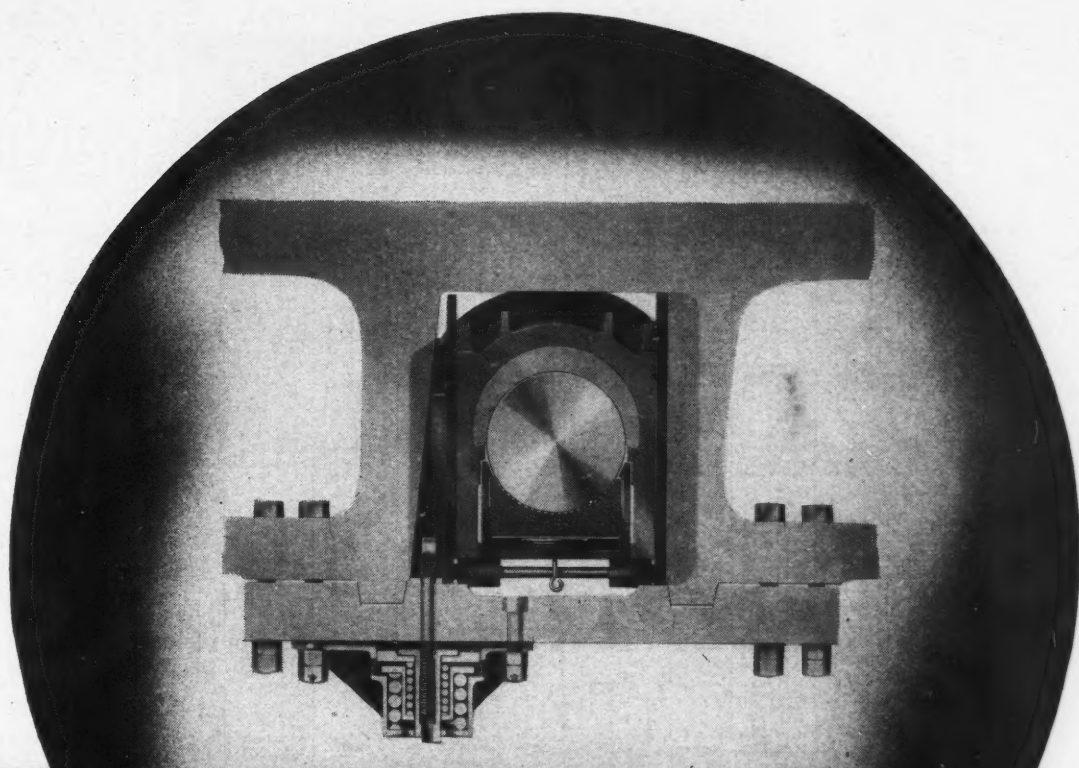
Henry K. McHarg, Jr., who served as vice-president and general manager of the Detroit & Mackinac at East Tawas, Mich., until 1931, died on July 29, at New York. He was 59 years old. Since August, 1941, he had been serving as a lieutenant on active duty with the U. S. Coast Guard Reserve.

J. C. Rankine, assistant to the vice-president of the Great Northern, with headquarters at St. Paul, Minn., died on July 26. He will be succeeded by **M. C. Anderson**. Mr. Rankine was born at Milwaukee, Wis., on June 29, 1880, and entered railroad service as a telegraph operator on the Wisconsin Central. He entered the service of the Great Northern in 1904 as telegraph operator, serving successively thereafter as wire chief, telegraph censor, chief clerk in the telegraph

department, telephone and telegraph engineer, assistant superintendent of telegraph and superintendent of telegraph. He was appointed assistant to the vice-president of the road in April, 1930, and served in that position continuously until his death.

Elisha Lindsay Potter, auditor of disbursements of the Atlantic Coast Line at Wilmington, N. C., died at Boston, Mass., on July 21. J. E. Shannon, general accountant at the same point, has been appointed auditor of disbursements to succeed Mr. Potter, as reported elsewhere in these columns. Mr. Potter was born on February 20, 1885, at Byrdville, Columbus county, N. C., and entered the service of the Atlantic Coast Line in September, 1906, as clerk in the office of the auditor of freight receipts. In October, 1911, he became chief statistician in the same office, serving in that capacity until June, 1916, when he became chief interline freight clerk. Two years later he was appointed assistant chief clerk. From January, 1919, to October, 1923, he was chief clerk successively in the office of the auditor of freight receipts and in the comptroller's office. On the latter date he became auditor of station accounts. In January, 1929, he was appointed auditor of miscellaneous accounts, serving in that capacity until January, 1931, at which time he was promoted to auditor of disbursements, the position he held at the time of his death.

Arthur C. Everham, former assistant chief engineer of the Kansas City Terminal and since 1940 director of public works at Kansas City, Mo., died in that city on July 22. Mr. Everham was born at Rocklin, Cal., on December 13, 1877, and entered railway service in 1902 as an assistant of the engineering corps of the Cleveland, Cincinnati, Chicago & St. Louis (part of the New York Central system), at Galion, Ohio. From July, 1903, to August, 1905, he served as an assistant engineer of the Michigan Central (part of the New York Central system) in charge of construction at Detroit, Mich., and later in charge of surveys for the Detroit River tunnel, with the same headquarters. In 1905 he was appointed terminal engineer of the same road and also of the Detroit River Tunnel Company. On August 1, 1907, Mr. Everham was promoted to assistant tunnel engineer of the Detroit River Tunnel Company, holding that position until December, 1909. In 1910 he became resident engineer of the Cincinnati, Hamilton & Dayton (now part of the Baltimore & Ohio), in charge of docks and terminal construction, with headquarters at Toledo, Ohio, and on January 1, 1911, he went with the Kansas City Terminal as division engineer, being promoted to assistant chief engineer two months later, in charge of the construction of the new union passenger station. Mr. Everham remained with the Kansas City Terminal until early in 1915, and then became Western contract manager of the Raymond Concrete Pile Company. During World War I he served as a major in the U. S. Army in charge of the construction of a number of munition plants.



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Locomotives were never worked harder than today. Never has it been more important to keep them on the road.

Thousands of locomotives are running longer between shoppings thanks to their Franklin Automatic Compensators and Snubbers.

This Franklin device compensates for driving box expansion due to temperature change and other operating conditions. It has ample reserve strength to take care of the high piston thrust of large locomotives and at the same time there is no chance for tight or stuck boxes.

By maintaining accurate driving box adjustment, the Franklin Automatic Compensator and Snubber increases locomotive mileage between shoppings and greatly prolongs the life of every bearing on the locomotive.



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NEW YORK

CHICAGO

In Canada: FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL

August 7, 1943

REVENUES AND EXPENSES OF RAILWAYS

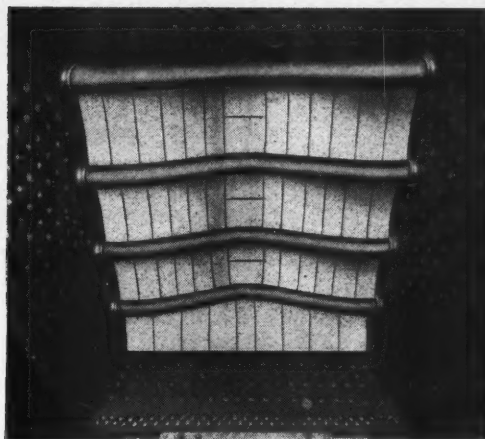
MONTH OF JUNE AND SIX MONTHS OF CALENDAR YEAR 1943

Name of road	Av. mileage operated during period	Operating revenues			Operating expenses			Operating ratio	Total	Net from railway operation	
		Freight	Passenger	(inc. m. s.)	Way and structures	Maintenance of equipment	Traffic			Operating income	Net railway operating income
Akron, Canton & Youngstown	171	\$3,852,828	\$128	\$332,632	\$64,079	\$33,602	\$15,918	65.9	\$219,397	\$77,812	\$58,674
6 mos.	171	2,112,993	706	2,207,788	293,019	189,899	101,710	56.5	1,245,314	626,192	529,204
Alton	959	2,182,670	651,588	3,113,397	458,422	380,865	57,982	60.4	1,880,309	448,491	214,808
6 mos.	959	12,673,798	3,837,585	18,295,541	1,982,146	2,448,188	309,748	58.9	7,511,661	3,879,028	2,402,532
Atchison, Topeka & Santa Fe System	13,148	27,292,839	9,505,722	39,293,632	4,034,796	5,268,829	540,245	50.3	19,520,280	5,827,539	5,218,853
6 mos.	13,154	16,027,009	47,511,967	222,859,046	21,121,608	30,129,651	2,085,818	50.8	109,683,181	30,847,749	27,549,308
Atlanta & West Point	93	276,725	149,910	463,614	44,386	43,208	8,691	52.1	221,881	79,051	44,771
6 mos.	93	1,623,686	725,897	2,585,434	235,511	243,626	55,458	54.2	1,184,651	422,858	250,970
Western of Alabama	133	260,269	150,344	445,344	56,396	52,839	9,541	56.2	250,566	69,842	55,246
6 mos.	133	1,628,919	765,861	2,611,178	278,926	28,442	59,455	56.5	1,137,207	400,573	330,708
Atlanta, Birmingham & Coast	639	481,685	48,970	553,342	78,467	75,910	25,916	73.3	405,490	82,967	50,041
6 mos.	639	3,277,054	332,939	3,765,365	463,168	447,542	154,539	65.2	2,456,701	735,493	487,790
Atlantic Coast Line	4,960	8,416,382	3,820,892	12,855,420	1,102,292	1,579,045	180,423	51.7	6,645,951	1,959,469	1,481,858
6 mos.	4,974	55,979,255	20,810,808	81,141,810	6,066,278	9,554,702	1,062,925	48.7	39,489,784	13,902,026	10,705,028
Charleston & Western Carolina	343	354,890	9,014	369,739	45,591	53,586	10,662	61.2	226,294	68,445	62,622
6 mos.	343	2,180,076	72,659	2,292,959	243,117	303,647	63,230	58.1	1,332,683	550,276	542,066
Baltimore & Ohio	6,150	23,509,183	3,302,739	28,295,733	3,805,448	5,495,421	495,450	68.9	19,503,845	5,359,239	4,631,285
6 mos.	6,150	146,831,084	17,703,933	173,615,804	19,469,950	32,593,076	2,730,155	65.9	114,350,586	34,201,707	25,798,585
Staten Island Rapid Transit	24	2,223,275	665,937	1,937,821	187,226	179,324	1,069	51.9	200,722	145,320	127,916
6 mos.	24	14,223,275	4,665,937	13,937,821	1,187,226	1,324,324	6,970	56.7	1,098,190	839,631	489,361
Bangor & Aroostook	602	275,534	89,223	399,936	117,774	98,682	5,607	93.7	374,896	13,876	34,425
6 mos.	602	3,818,701	429,743	4,419,795	714,983	617,913	33,460	58.8	2,600,047	962,275	1,067,889
Bessemer & Lake Erie	214	2,034,584	2,132	2,048,329	1,97,925	786,321	12,609	66.1	1,354,350	142,143	211,701
6 mos.	214	8,023,543	11,340	8,107,467	909,704	4,729,102	78,005	93.9	7,616,475	990,992	193,635
Boston & Maine	1,824	4,607,727	1,736,518	7,006,446	1,084,940	1,040,663	75,592	67.4	4,721,544	1,364,396	1,075,196
6 mos.	1,824	29,772,512	8,834,463	42,389,118	6,048,118	6,283,465	467,755	67.4	28,562,119	8,264,500	6,555,070
Burlington, Rock Island	228	214,939	70,970	301,299	28,228	14,099	3,103	53.7	161,896	127,493	95,533
6 mos.	228	1,092,514	380,533	1,554,455	156,988	135,857	15,985	60.4	615,989	546,654	379,772
Cambria & Indiana	35	80,813	.....	80,813	2,841	74,005	471	142.55	115,305	-90,333	-22,408
6 mos.	35	920,212	.....	920,212	87,422	431,346	2,974	72.62	668,509	-270,228	-177,021
Canadian Pacific Lines in Maine	234	488,536	74,751	589,513	77,197	83,516	6,352	56.5	235,329	235,908	206,033
6 mos.	234	2,707,073	309,441	3,146,379	335,415	410,926	37,130	56.5	1,776,765	1,247,193	1,058,777
Canadian Pacific Lines in Vermont	90	84,169	9,543	106,682	38,534	29,573	2,307	147.8	157,640	-59,154	-87,839
6 mos.	90	516,722	64,249	655,484	168,605	164,813	13,485	136.6	899,789	-274,564	-439,857
Central of Georgia	1,815	2,116,041	686,690	3,050,062	325,231	419,792	68,612	63.5	1,976,508	693,338	647,533
6 mos.	1,815	13,321,315	3,643,382	18,528,184	1,941,191	2,433,004	407,181	61.6	11,406,920	4,826,419	4,552,259
Central of New Jersey	657	4,067,604	710,666	5,059,242	543,015	902,928	52,591	72.6	3,673,736	661,557	387,633
6 mos.	657	25,803,345	3,765,316	31,324,620	3,275,564	5,263,618	306,797	71.2	22,307,428	4,990,127	3,388,964
Central Vermont	422	759,150	92,000	907,683	14,794	128,627	10,882	67.5	205,219	253,596	221,831
6 mos.	422	3,797,266	432,000	4,532,587	660,763	703,700	61,497	73.5	1,202,659	943,648	691,648
Chesapeake & Ohio	3,088	12,100,156	1,736,796	14,465,067	1,733,349	2,764,749	209,012	61.0	8,823,225	2,327,194	2,578,180
6 mos.	3,090	85,367,370	9,134,516	97,982,469	9,553,029	16,843,860	1,287,478	54.0	52,945,033	18,065,537	15,184,068
Chicago & Eastern Illinois	912	1,862,663	552,317	2,652,456	280,335	409,195	58,876	62.8	1,652,720	569,736	288,107
6 mos.	912	11,569,575	3,002,030	15,868,035	1,563,075	2,211,464	354,928	60.7	6,228,992	3,727,992	2,243,211
Chicago & Illinois Midland	131	384,437	1,194	406,998	63,836	75,532	20,483	72.4	294,644	48,799	58,664
6 mos.	131	2,922,205	7,132	3,069,474	372,544	451,252	127,945	58.8	1,806,297	445,487	479,737
Chicago & North Western	8,100	9,590,550	3,037,402	13,925,387	1,785,916	2,314,824	192,670	62.3	5,244,365	2,933,897	2,958,637
6 mos.	8,100	54,502,249	14,938,660	76,698,697	9,372,376	12,478,071	1,181,177	64.3	49,329,222	15,506,843	15,250,034
Chicago, Burlington & Quincy	9,030	12,366,506	2,692,270	16,549,925	2,495,660	2,240,833	273,799	58.5	6,870,102	1,566,010	1,408,377
6 mos.	9,030	77,045,349	13,801,874	99,463,960	12,344,673	12,774,673	1,558,010	55.1	54,782,863	23,376,059	22,181,097
Chicago Great Western	1,500	2,015,857	229,299	2,412,544	331,155	391,358	58,011	63.3	1,526,051	475,075	290,066
6 mos.	1,500	12,450,528	1,240,720	14,672,526	1,839,155	1,709,904	367,065	62.0	5,575,916	2,839,682	1,752,399
Chicago, Indianapolis & Louisville	541	871,955	92,203	1,038,206	132,214	175,369	30,328	65.8	683,520	290,483	266,810
6 mos.	541	5,520,740	575,796	6,535,012	712,542	1,032,420	181,640	62.8	4,102,322	1,991,077	1,699,763

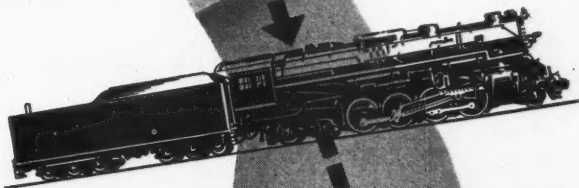
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Railway Age—August 7, 1943

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 541 871,955 92,203 1,038,206 132,214 175,369 30,328 308,565 683,520 65.8 354,686 2,432,690 1,991,077 266,810 165,379
 541 5,320,740 575,796 6,535,012 712,542 1,032,420 181,640 1,954,690 4,102,322 62.8 2,432,690 1,991,077 1,691,276 1,099,702
 Chicago, Indianapolis & Louisville..... June 6 mos.



TAKE THIS STEP



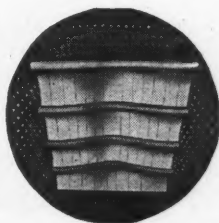
FOR COAL CONSERVATION



Coal on the tender represents not only certain dollars of expense but priceless man hours as well. Therefore, its careful conservation is a wartime duty.

« A generation of railroad men have learned that Security Sectional Arches are easy on the coal pile. A complete arch in every locomotive firebox is a fundamental step towards fuel conservation.

**HARBISON-WALKER
REFRACTORIES CO.**
Refractory Specialists



**AMERICAN ARCH CO.
INCORPORATED**
60 EAST 42nd STREET, NEW YORK, N. Y.
*Locomotive Combustion
Specialists*

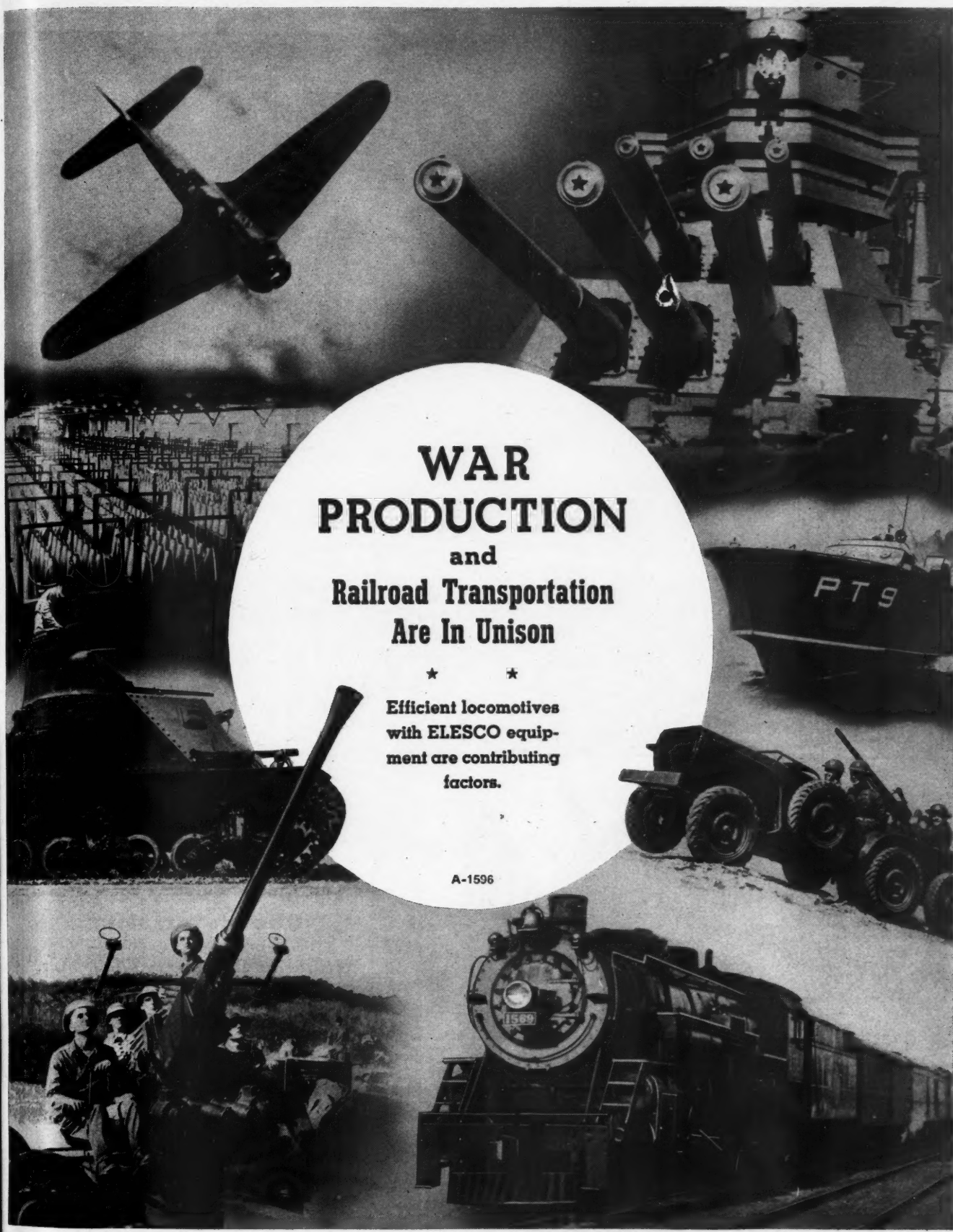
REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JUNE AND SIX MONTHS OF CALENDAR YEAR 1943—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues			Operating expenses			Operating ratio	Income				
		Freight	Passenger (inc. misc.)	Total	Maintenance of way and structures	Equip-ment	Traffic		Trans-portion	Total			
Chicago, Milwaukee, St. Paul & Pacific.....	June	10,765	\$14,275,202	\$2,925,622	\$18,949,856	\$3,563,994	\$2,299,634	\$252,779	\$5,108,254	\$11,806,624	\$4,273,232	\$4,054,334	\$2,047,881
Chicago, Milwaukee, St. Paul & Pacific.....	6 mos.	10,781	83,128,023	13,415,749	105,535,415	13,754,534	1,479,809	1,479,809	30,912,073	63,587,065	42,376,554	29,085,554	13,581,357
Chicago, Rock Island & Pacific.....	June	7,751	10,853,580	3,446,765	15,487,405	1,724,142	1,947,944	1,407,757	4,139,379	8,647,105	6,840,300	3,699,812	2,823,006
Chicago, Rock Island & Pacific.....	6 mos.	7,762	62,533,065	18,393,629	87,314,137	8,160,056	11,111,329	1,844,883	24,684,211	48,954,126	38,360,011	25,233,730	12,619,597
Chicago, St. Paul, Minneapolis & Omaha.....	June	1,624	1,595,445	373,795	2,129,008	299,811	337,828	39,066	774,943	1,527,514	601,494	431,220	377,360
Chicago, St. Paul, Minneapolis & Omaha.....	6 mos.	1,626	10,098,448	1,779,411	12,730,661	1,638,632	1,991,950	237,404	4,958,206	9,273,495	3,457,166	2,651,297	2,299,142
Clinchfield Railroad.....	June	302	933,621	19,668	963,434	109,235	163,006	22,091	190,381	510,201	453,143	326,997	340,295
Clinchfield Railroad.....	6 mos.	303	6,404,041	87,526	6,546,378	549,353	928,777	130,812	1,272,938	3,017,311	3,529,067	2,840,233	2,793,453
Colorado & Southern.....	June	748	781,520	267,933	1,142,329	182,806	170,931	14,599	321,792	770,213	412,116	261,835	237,019
Colorado & Southern.....	6 mos.	748	4,522,137	1,533,005	6,601,215	767,610	959,842	91,947	1,940,835	4,035,323	2,565,892	1,651,852	1,523,731
Fort Worth & Denver City.....	June	804	759,001	411,895	1,277,485	137,735	133,745	21,939	310,846	659,198	618,287	355,940	312,906
Fort Worth & Denver City.....	6 mos.	804	3,902,662	2,322,833	6,815,676	729,700	683,101	140,171	1,671,146	3,549,900	3,265,776	1,883,738	1,642,890
Colorado & Wyoming.....	June	42	74,393	.....	127,087	18,386	23,487	944	54,867	103,027	24,060	19,199	18,462
Colorado & Wyoming.....	6 mos.	42	570,138	.....	895,632	87,653	80,665	5,469	337,409	539,651	355,981	136,720	133,683
Columbus & Greenville.....	June	168	85,134	6,658	100,200	26,957	19,984	3,675	39,312	101,513	1,313	9,233	5,648
Columbus & Greenville.....	6 mos.	168	637,723	40,396	728,531	155,195	117,607	21,940	239,909	607,293	121,238	28,156	1,268
Delaware & Hudson.....	June	848	3,616,556	160,343	3,888,856	438,984	931,467	43,350	1,170,979	2,691,858	1,196,998	739,660	751,753
Delaware & Hudson.....	6 mos.	848	21,796,052	903,714	23,705,194	2,370,539	5,436,297	263,283	9,348,861	16,210,033	4,253,698	4,246,795	4,435,729
Delaware, Lackawanna & Western.....	June	974	5,085,278	1,033,160	6,749,521	745,503	970,084	113,790	2,490,375	4,490,004	1,096,517	940,799	1,013,523
Delaware, Lackawanna & Western.....	6 mos.	979	31,036,490	5,238,559	39,946,249	3,651,623	5,597,334	677,317	14,877,733	25,840,387	14,105,862	7,023,862	6,443,160
Denver & Rio Grande Western.....	June	2,405	4,813,418	882,933	5,990,583	544,074	892,117	88,834	1,576,120	3,271,713	2,718,870	1,675,003	1,509,502
Denver & Rio Grande Western.....	6 mos.	2,405	27,782,441	4,700,893	33,908,683	2,618,139	5,369,992	550,272	9,348,954	18,868,956	15,039,727	9,461,560	8,627,905
Denver & Salt Lake.....	June	232	173,795	7,616	194,507	50,859	28,521	2,586	64,783	176,453	18,054	31,774	63,649
Denver & Salt Lake.....	6 mos.	232	1,373,838	47,187	1,493,066	235,699	298,521	15,727	464,791	1,079,933	413,133	238,733	495,336
Detroit & Mackinac.....	June	242	60,579	20,466	90,055	24,640	19,088	754	31,645	81,670	8,385	27,805	28,575
Detroit & Mackinac.....	6 mos.	242	369,005	70,532	497,809	107,308	107,308	5,084	183,635	420,516	77,293	76,492	14,461
Detroit & Toledo Shore Line.....	June	50	279,596	.....	281,712	42,463	22,545	9,278	81,658	163,809	117,903	794,108	35,280
Detroit & Toledo Shore Line.....	6 mos.	50	2,224,386	.....	2,232,855	187,044	146,714	54,947	543,601	980,497	1,252,358	794,108	464,798
Detroit, Toledo & Iron Range.....	June	464	619,889	1,396	668,017	85,019	110,409	13,350	175,417	407,451	260,566	164,294	171,205
Detroit, Toledo & Iron Range.....	6 mos.	464	4,596,582	6,751	4,924,516	551,966	655,967	85,337	1,095,138	2,510,338	2,414,121	1,361,150	1,323,383
Duluth, Missabe & Iron Range.....	June	546	4,664,456	4,546	5,421,310	432,577	448,005	4,591	7,908,030	1,723,184	3,698,126	1,285,220	1,293,295
Duluth, Missabe & Iron Range.....	6 mos.	546	10,612,204	19,729	12,353,832	2,007,561	2,776,814	25,815	27,084,443	7,751,394	4,602,438	1,471,669	1,635,592
Duluth, Winnipeg & Pacific.....	June	175	259,000	2,200	265,400	41,985	27,744	1,994	82,375	157,670	107,730	88,070	68,818
Duluth, Winnipeg & Pacific.....	6 mos.	175	1,274,000	21,400	1,320,800	211,557	172,263	11,441	507,110	924,105	396,695	295,046	188,544
Elgin, Joliet & Eastern.....	June	302	2,087,173	84	2,462,047	168,633	831,405	97,461	870,672	1,943,722	4,266,467	1,287,701	655,301
Elgin, Joliet & Eastern.....	6 mos.	302	13,933,776	84	16,267,947	1,159,279	4,817,691	97,461	5,566,191	11,999,479	4,266,467	1,287,701	655,301
Erie.....	June	2,242	11,176,223	986,945	12,961,045	1,237,977	2,102,860	207,083	4,093,348	8,031,554	4,979,491	2,064,932	1,443,273
Erie.....	6 mos.	2,242	67,918,452	4,625,565	76,705,843	6,061,546	12,304,040	1,242,899	24,808,305	46,453,528	30,252,315	13,536,231	10,333,707
Florida East Coast.....	June	682	1,256,755	7,605,570	18,055,379	1,671,541	1,392,929	250,762	4,231,513	8,255,014	9,803,365	6,428,253	5,611,331
Florida East Coast.....	6 mos.	682	9,327,175	.....	.....	.....	.....	.....	4,231,513	8,255,014	9,803,365	6,428,253	5,611,331
Georgia Railroad.....	June	329	696,971	170,428	905,809	102,813	95,229	21,050	268,550	506,425	399,384	370,998	346,338
Georgia Railroad.....	6 mos.	329	4,214,346	951,789	5,431,490	516,617	549,596	129,956	1,677,556	2,989,739	2,441,741	2,273,110	1,462,189
Georgia & Florida.....	June	408	158,417	4,892	167,404	40,431	21,386	9,788	309,245	131,197	36,207	26,731	20,000
Georgia & Florida.....	6 mos.	408	919,156	28,799	980,649	236,971	131,212	58,340	309,245	773,447	207,202	151,588	111,133
Grand Trunk Western.....	June	1,026	2,552,000	331,000	3,080,000	456,930	484,307	37,516	1,092,600	2,176,082	903,918	555,885	536,423
Grand Trunk Western.....	6 mos.	1,026	14,854,000	1,594,000	17,523,000	2,323,858	2,129,979	212,979	6,243,066	12,014,351	5,488,649	3,716,206	3,539,630
Canadian National Lines in New England.....	June	172	106,200	9,600	114,200	49,792	44,156	2,534	98,102	223,812	89,612	109,915	94,738
Canadian National Lines in New England.....	6 mos.	172	720,700	41,500	872,800	290,279	185,461	14,729	546,984	1,164,428	291,628	413,446	619,768
Great Northern.....	June	8,102	15,514,610	1,694,382	18,721,208	2,799,297	2,903,498	211,456	3,936,823	10,297,932	8,423,276	3,207,044	3,123,645
Great Northern.....	6 mos.	8,102	72,929,419	7,715,512	87,319,175	13,232,858	16,781,624	1,263,975	22,192,803	55,906,804	31,412,371	13,431,282	12,221,212
Green Bay & Western.....	June	234	208,349	584	216,576	54,351	7,907	47,261	352,737	828,246	495,035	345,254	313,588
Green Bay & Western.....	6 mos.	234	1,274,438	3,107	1,323,281	276,298	109,434	47,261	352,737	828,246	495,035	345,254	313,588
Gulf & Ship Island.....	June	259	135,022	36,064	177,839	68,328	25,636	25,636	177,839	190,659	12,820	32,694	47,350
Gulf & Ship Island.....	6 mos.	259	980,768	266,334	1,337,245	446,820	201,987	16,799	543,107	1,263,159	74,086	46,792	149,262

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0 mos.
Gulf & Ship Island



WAR PRODUCTION and Railroad Transportation Are In Unison

★ ★
Efficient locomotives
with ELESKO equip-
ment are contributing
factors.

A-1596

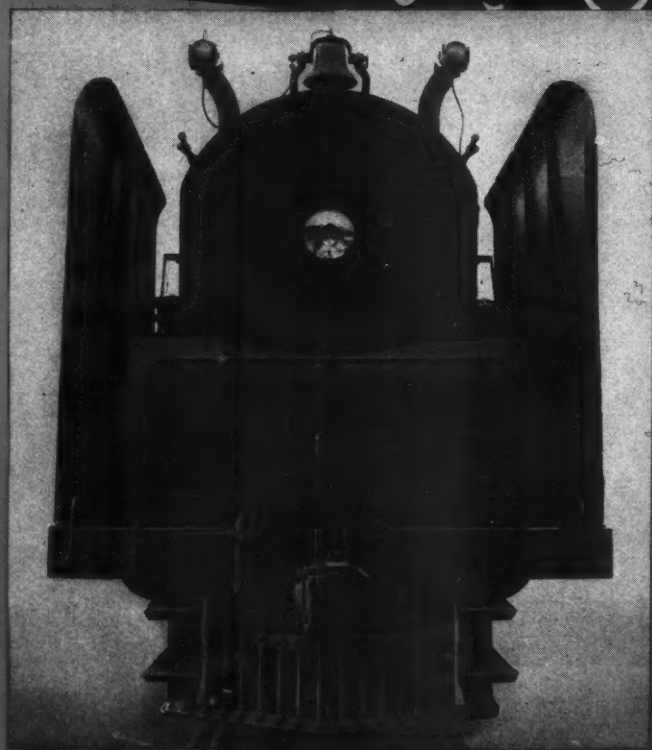
THE
SUPERHEATER
C O M P A N Y

SUPERHEATERS • FEEDWATER HEATERS
AMERICAN THROTTLES • STEAM DRYERS
EXHAUST STEAM INJECTORS • PYROMETERS

Representative of
AMERICAN THROTTLE COMPANY, INC.
60 East 42nd Street, NEW YORK
122 S. Michigan Blvd., CHICAGO

Montreal, Canada
THE SUPERHEATER COMPANY, LTD.

AGAIN *the* WAR



Locomotive Characteristics

Weight on Drivers	270,000 Lb.
Weight of Engine	470,000 Lb.
Cylinders	24½ x 32 Ins.
Diameter of Drivers	75 Ins.
Boiler Pressure	285 Lb.
Tractive Power	62,040 Lb.
Tender Capacity—Water	20,000 Gals.
Tender Capacity—Fuel	25 Tons



**FOR VICTORY BUY U. S.
WAR BONDS AND STAMPS**

TIME PACE



goes up on the

DELAWARE & HUDSON

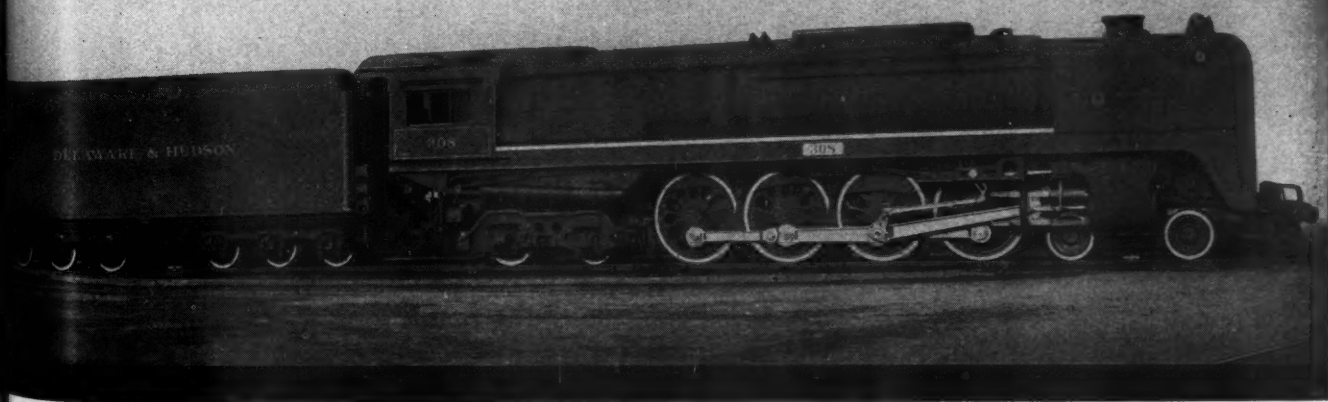
Fifteen 4-8-4's have recently been delivered by Alco to the Delaware & Hudson. This makes a fleet of 50 — fifteen 4-8-4's and thirty-five 4-6-6-4's — high-speed, high-powered, heavy tonnage locomotives which Alco has delivered to this road since July 1940.



AMERICAN LOCOMOTIVE

MANUFACTURERS OF MOBILE POWER

STEAM, DIESEL AND ELECTRIC LOCOMOTIVES, MARINE DIESELS, TANKS, GUN CARRIAGES & OTHER ORDNANCE



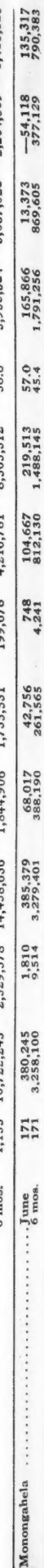
REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JUNE AND SIX MONTHS OF CALENDAR YEAR 1943—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues				Operating expenses				Operating ratio	Net from railway operation	Net railway operating income	
		Freight	Passenger	Total	Way and structures	Maintenance of equipment	Traffic	Trans- portation	Total			1943	1942
Gulf, Mobile & Ohio	1,973	\$2,554,310	\$223,305	\$2,777,615	\$531,055	\$462,042	\$82,532	\$782,303	\$1,978,197	68.9	\$892,682	\$333,284	\$484,763
	1,972	17,438,345	1,282,510	19,720,855	2,872,622	2,775,384	487,346	4,948,176	11,748,019	60.9	7,534,416	2,525,244	2,211,877
	6 mos.	13,134,438	2,835,784	16,969,222	2,796,291	3,140,602	209,506	4,999,378	11,712,139	69.1	5,249,113	2,994,762	1,689,922
Illinois Central	4,827	\$2,630,134	14,972,898	17,602,932	15,852,229	18,330,477	1,246,415	29,456,653	68,701,862	66.3	34,991,800	17,244,685	11,585,352
	1,524	2,860,393	386,018	3,246,411	429,137	357,351	41,259	957,340	1,878,103	55.4	1,514,012	684,467	1,191,311
	1,523	17,014,145	1,903,137	19,762,940	2,627,105	2,275,725	244,833	5,431,689	11,131,782	56.3	8,631,158	4,881,275	5,252,335
	6 mos.	6,348	15,994,831	3,221,802	20,333,367	3,225,428	3,503,953	250,765	5,956,718	66.8	6,763,125	3,261,637	2,887,145
Illinois Central System	6,352	99,644,279	16,876,035	133,456,602	18,479,334	21,106,202	1,491,248	34,888,342	79,833,644	64.7	43,622,958	24,499,351	21,279,576
	476	554,776	163,532	718,308	87,522	77,497	18,935	237,239	451,785	56.6	345,821	135,897	119,281
	475	3,212,327	1,035,480	4,247,807	514,766	481,472	110,479	1,393,486	2,643,451	56.6	2,024,951	776,525	691,474
	6 mos.	878	3,033,606	4,030,559	3,631,152	594,927	59,270	888,362	2,085,069	57.4	1,546,083	711,083	436,076
Kansas City Southern	878	17,983,711	2,133,287	20,117,000	3,403,689	2,542,441	347,506	4,977,186	11,911,945	55.8	9,429,561	4,727,561	3,205,335
	328	247,185	1,396	251,804	85,435	15,132	9,370	78,314	199,870	79.4	51,934	43,684	4,082
	328	1,894,379	7,340	1,922,243	324,460	104,023	58,497	442,976	995,363	51.8	926,880	579,840	401,998
	6 mos.	156	364,810	195	463,631	40,620	37,624	604	157,264	33.9	306,367	189,793	196,527
Lake Superior & Ishpeming	156	801,817	1,033	1,054,202	185,221	242,213	3,779	258,850	736,449	69.9	317,753	80,917	128,841
	96	205,019	196	206,032	46,314	26,331	4,379	55,033	139,860	67.9	66,172	37,744	21,539
	96	1,599,570	2,289	1,607,485	198,626	174,261	25,479	444,615	884,070	55.0	723,415	314,771	173,275
	6 mos.	190	396,398	1,340,921	1,375,608	1,070,778	6,895	123,643	296,289	74.7	100,109	43,223	70,493
Lehigh & New England	190	2,978,353	.....	2,994,179	262,289	660,380	40,454	867,858	1,940,345	64.8	1,053,334	528,699	665,090
	1,260	6,246,452	660,360	7,329,919	963,276	1,251,907	111,897	2,420,712	4,947,657	67.5	2,382,262	1,425,573	1,078,482
	1,260	37,967,969	3,102,727	43,968,607	7,356,301	7,356,301	683,353	15,188,371	29,241,253	66.5	14,727,354	8,921,907	6,595,638
	6 mos.	854	1,411,901	1,340,092	1,599,127	361,086	31,445	331,739	959,249	60.0	639,878	236,190	157,589
Louisville & Arkansas	854	8,648,964	731,494	9,727,260	2,189,557	1,915,050	182,969	1,903,506	5,638,626	58.0	4,088,634	1,575,295	1,157,102
	4,745	12,204,943	3,955,138	17,022,661	1,613,146	2,389,265	198,953	4,345,994	9,048,454	53.2	7,974,207	2,192,935	2,189,196
	4,745	75,560,495	22,014,636	103,085,736	9,348,876	15,214,704	1,207,192	27,900,097	56,701,677	55.0	46,384,059	12,003,195	13,178,430
	6 mos.	988	926,722	381,827	1,429,630	252,356	11,798	460,097	999,900	69.9	3,198,255	1,709,805	1,552,295
Maine Central	988	7,120,827	1,596,558	9,356,277	1,301,844	1,483,653	73,906	3,021,104	6,158,022	65.8	3,198,255	1,709,805	1,552,295
	351	129,540	24	131,956	38,280	78,039	17,039	46,196	109,130	82.7	22,826	257,481	133,383
	351	883,019	1,748	901,367	140,712	78,039	12,918	283,448	504,899	56.0	396,468	257,481	203,321
	6 mos.	1,408	1,063,794	44,738	1,153,059	224,796	58,346	339,138	835,852	72.5	317,207	254,632	279,745
Minneapolis & St. Louis	1,408	6,889,581	185,687	7,125,437	1,058,920	977,599	353,950	2,121,645	4,778,562	67.1	2,346,895	1,866,961	1,779,054
	4,277	3,226,204	266,249	3,786,337	694,491	600,191	71,490	1,265,800	2,744,946	72.5	1,041,391	614,176	609,467
	4,277	18,545,810	1,201,412	21,253,568	3,311,294	3,567,500	415,845	7,744,916	15,700,996	73.9	5,552,572	3,386,739	3,313,422
	6 mos.	551	333,821	27,742	394,054	62,829	44,732	116,629	239,020	60.7	155,034	138,118	81,018
Duluth, South Shore & Atlantic	551	1,715,350	144,229	2,000,892	329,724	294,974	46,457	709,287	1,423,485	71.1	577,407	463,630	356,471
	152	132,634	6,849	146,441	36,851	9,979	3,275	41,561	97,264	66.4	49,177	29,485	19,287
	152	966,537	35,643	1,051,286	169,346	53,143	18,274	236,565	509,501	48.5	540,785	220,960	171,127
	6 mos.	158	121,686	5,260	129,681	26,579	8,582	33,394	93,394	72.0	321,210	178,161	152,253
Mississippi Central	158	801,276	39,088	855,321	161,570	91,279	51,514	193,326	534,111	62.4	321,210	196,146	143,990
	365	161,058	4,366	171,840	71,612	22,318	7,633	66,746	174,718	101.7	19,287	29,485	11,187
	365	1,047,402	18,982	1,112,225	319,901	120,600	43,931	390,712	915,963	82.4	196,262	132,895	38,927
	6 mos.	172	236,513	41,212	238,345	44,219	31,967	67,766	834,235	62.6	38,339	30,714	75,367
Missouri & Arkansas	172	1,501,061	2,099	1,512,028	208,716	194,969	19,719	373,065	834,235	55.2	677,793	253,981	333,046
	3,293	4,613,009	1,194,749	6,303,341	1,862,939	822,106	124,859	1,755,232	4,777,544	75.8	1,525,707	1,179,904	813,321
	3,293	27,929,288	6,115,023	36,731,961	9,746,953	4,763,395	739,533	10,797,362	27,441,947	74.4	9,386,670	6,102,504	3,568,628
	7,097	12,893,442	3,081,825	17,159,902	2,135,122	2,464,968	300,232	5,050,449	10,441,947	60.8	6,717,955	3,528,633	5,044,479
Missouri Pacific	7,097	84,178,810	15,853,061	107,102,797	10,768,456	13,347,747	1,713,719	29,081,670	57,837,545	54.0	49,265,252	26,676,420	20,121,816
	1,734	2,865,814	288,709	3,277,471	448,580	314,492	53,662	800,890	1,701,731	51.92	1,575,740	679,287	459,461
	1,734	18,041,546	1,710,184	20,568,979	2,547,774	1,724,184	305,974	4,545,224	9,602,397	46.68	10,966,582	4,848,956	4,976,716
	6 mos.	1,155	1,645,083	2,358,008	362,885	308,115	35,129	741,355	1,546,352	65.7	5,935,324	2,937,757	4,302,002
International Great Northern	1,155	10,722,245	2,529,578	14,458,636	1,844,906	1,735,531	199,678	4,210,781	8,505,312	58.8	7,983,524	3,067,028	2,204,309
	171	380,245	1,810	385,379	68,017	42,756	748	104,667	219,513	57.0	165,866	13,373	54,118
	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	1,488,145	45.4	1,791,256	869,605	377,129
Monongahela	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	1,488,145	45.4	1,791,256	869,605	377,129

Table continued on third right-hand page

Railway Age—August 7, 1943

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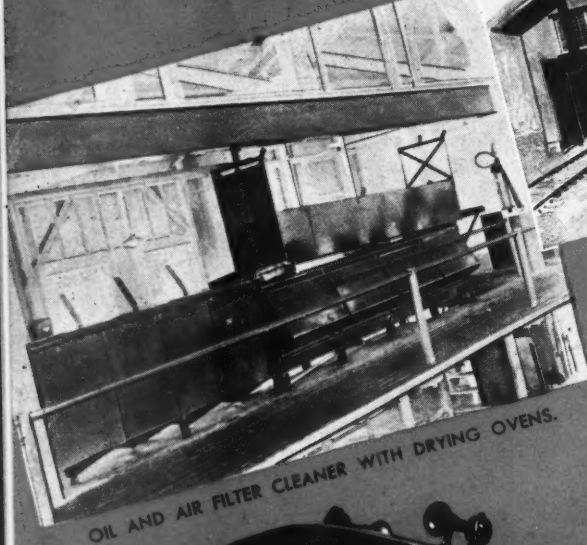
	4,453	30,424,789	2,222,176	17,705,030	1,047,200	1,733,331	1,220,761	6,500,112	300	3,200,024	5,214,402
Monongahela	171	380,245	1,810	385,379	68,017	42,756	748	102,667	57.0	165,866	13,373
June	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
6 mos.	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
1 year	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
2 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
3 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
4 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
5 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
6 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
7 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
8 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
9 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
10 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
11 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
12 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
13 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
14 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
15 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
16 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
17 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
18 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
19 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
20 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
21 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
22 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
23 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
24 years	171	3,258,100	9,514	3,279,401	388,190	261,565	4,241	812,130	219,513	1,791,255	869,605
25 years	171	3,258,100	9,514	3,279,401	38						

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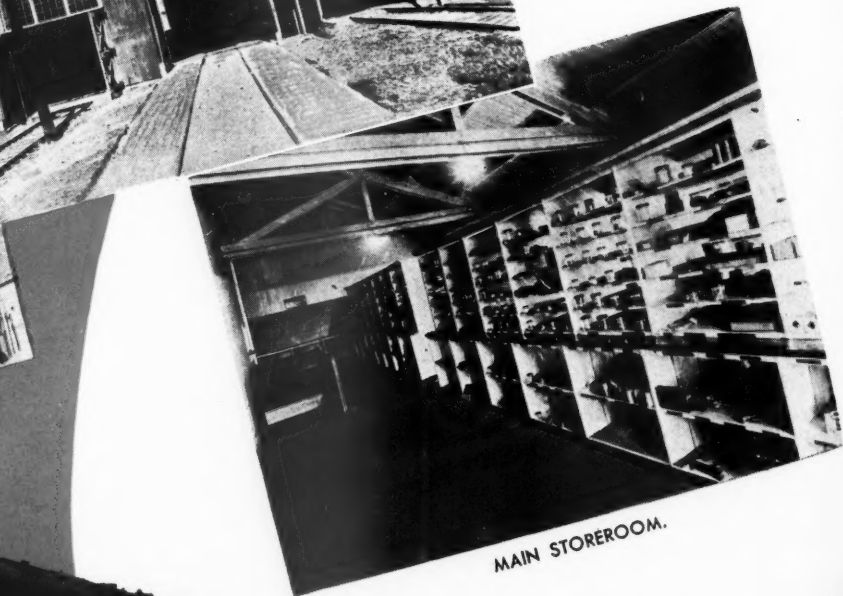
GM DIESEL LOCOMOTIVES REQUIRES ONLY SIMPLE MAINTENANCE



SOUTHERN RAILWAY
DIESEL MAINTENANCE SHOP
LUDLOW, KY.



OIL AND AIR FILTER CLEANER WITH DRYING OVENS.



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The success of this thinking is best evidenced by the outstanding performance of some 1200 General Motors Diesel Locomotive Units, now operating in all classes of service.

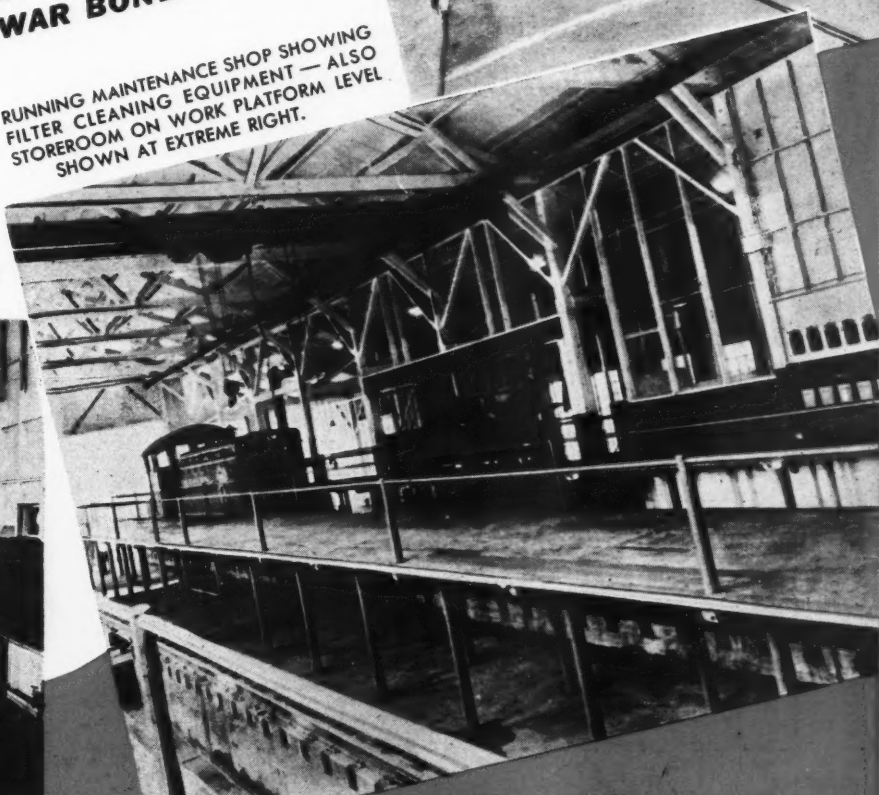
The adequate and efficient, yet inexpensive, maintenance facilities of the Southern Railway at Ludlow, Kentucky, here illustrated, are typical of the present trend of railroads using GM Diesel Locomotives.

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BUY MORE WAR BONDS** ★

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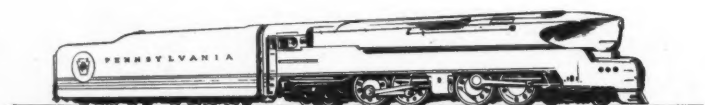
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P E N N S Y L V A N I A



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Locomotives of tomorrow serving the nation today in swollen war-time passenger transportation. Their combined speed and power carries heavy trains through on fast schedules without double-heading, thus conserving other essential motive power. Many steel forgings and castings by Standard contribute to the efficient performance of these ultra modern "land dreadnaughts" with the dependability for which Standard products have been known for 148 years.



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STEEL WORKS**

DIVISION OF THE BALDWIN LOCOMOTIVE WORKS
P H I L A D E L P H I A

FORGINGS • ROLLED WHEELS • TIRES • CASTINGS • SPRINGS

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JUNE AND SIX MONTHS OF CALENDAR YEAR 1943—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues			Operating expenses			Operating ratio	Net from railway operation	Net railway operating income		
		Freight	Passenger	Total (inc. misc.)	Way and structures	Traffic	Trans- portation			Operating income	1943	1942
Montour	51	\$178,181	1,255	\$179,566	\$18,793	\$856	\$50,112	75.4	\$44,167	\$16,092	\$58,781	\$80,865
June	6 mos.	1,344,297	.....	1,355,105	85,197	5,444	368,717	61.0	528,325	155,948	384,307	382,387
Nashville, Chattanooga & St. Louis	1,090	2,478,488	\$943,410	3,269,995	427,162	84,949	986,103	58.7	1,515,147	292,395	235,991	492,698
June	6 mos.	14,735,574	3,929,360	20,075,529	2,213,377	458,156	5,717,209	60.5	7,934,916	3,400,509	2,935,295	1,860,383
Nevada Northern	165	35,481	1,255	35,226	11,678	1,130	7,498	71.	11,364	8,550	11,996	13,587
June	6 mos.	301,456	6,710	322,953	68,197	7,114	54,572	54.1	148,228	56,717	71,446	77,617
New York Central	10,786	38,675,364	15,561,302	59,312,400	7,309,176	583,414	17,769,258	62.3	22,369,744	8,285,904	7,606,999	7,801,905
June	6 mos.	239,145,710	71,517,491	341,300,624	39,014,932	3,706,113	108,908,555	63.9	123,154,448	54,618,244	46,120,931	32,394,311
Pittsburgh & Lake Erie	231	2,375,261	118,083	2,578,596	316,534	39,631	761,553	80.5	502,819	—95,074	436,571	499,214
June	6 mos.	16,312,410	604,276	17,412,438	1,627,489	243,593	4,766,285	70.4	5,166,631	234,647	3,330,333	2,979,886
New York, Chicago & St. Louis	1,688	7,647,466	340,972	8,128,700	801,807	130,512	2,138,945	52.8	3,894,878	1,558,868	1,141,172	1,062,431
June	6 mos.	47,465,068	1,357,566	49,668,229	4,115,441	776,080	13,769,521	51.9	23,868,621	9,796,849	6,876,067	6,305,363
New York, New Haven & Hartford	1,838	7,563,843	6,492,796	15,160,280	1,771,047	170,372	4,328,706	58.1	6,357,451	4,123,963	3,062,219	2,820,529
June	6 mos.	47,560,498	33,351,118	87,452,546	9,308,181	878,122	26,391,584	59.0	35,844,678	23,045,713	17,129,822	12,773,026
New York Connecting	21	194,728	.....	214,923	92,495	.....	40,207	67.3	70,323	—16,494	78,292	92,842
June	6 mos.	1,199,899	.....	1,328,245	442,632	.....	261,556	60.0	530,643	60,635	635,087	938,340
New York, Ontario & Western	546	624,625	122,354	801,104	106,817	21,244	358,189	84.2	126,625	88,950	35,707	—20,779
June	6 mos.	3,373,899	257,760	3,967,798	527,352	130,250	1,901,279	89.6	411,610	206,289	23	—5,841
New York, Susquehanna & Western	262	408,780	39,105	465,215	43,355	3,777	163,179	55.9	205,069	141,967	83,527	81,934
June	6 mos.	2,545,320	229,217	2,912,360	198,854	23,913	1,017,633	52.6	1,382,167	972,720	545,714	373,864
Norfolk & Western	2,156	8,418,734	1,276,296	10,054,270	1,266,084	175,108	2,644,881	69.4	3,077,790	1,019,201	1,650,766	1,691,252
June	6 mos.	64,708,866	7,096,939	74,085,004	7,304,899	1,030,000	16,661,626	56.4	32,298,590	7,174,536	11,418,901	10,295,330
Norfolk Southern	734	737,731	29,964	786,702	155,109	30,639	214,921	64.3	280,989	168,734	138,308	191,003
June	6 mos.	3,833,516	147,924	4,112,018	903,083	178,494	1,239,680	71.2	1,173,453	708,051	542,346	620,747
Northern Pacific	6,868	9,293,342	1,855,164	12,207,805	1,558,025	180,373	3,144,835	60.4	4,838,015	2,371,154	2,683,262	1,938,255
June	6 mos.	54,101,167	7,219,431	66,772,079	8,268,135	1,024,639	18,630,066	63.3	24,510,573	12,021,963	14,349,269	9,621,169
Northwestern Pacific	331	491,845	14,412	530,008	158,628	2,111	157,031	72.2	147,590	124,932	102,048	76,800
June	6 mos.	2,738,642	73,568	2,929,415	931,287	14,570	882,967	74.9	734,857	598,430	443,509	88,572
Oklahoma City-Ada-Atoka	132	136,529	325	139,670	16,587	1,099	26,398	37.3	87,616	52,823	38,626	25,024
June	6 mos.	702,295	1,139	714,816	106,091	7,045	165,569	46.0	385,907	233,410	146,000	133,070
Pennsylvania	10,172	53,544,114	20,779,667	80,383,573	8,354,481	1,013,506	28,847,332	67.6	26,036,102	10,908,706	10,023,008	13,674,281
June	6 mos.	320,663,462	111,493,229	468,321,215	49,871,566	5,662,019	174,579,183	69.6	142,146,809	59,607,978	54,053,514	47,863,104
Long Island	378	1,043,979	2,835,427	4,029,895	488,425	12,771	1,418,748	60.0	1,612,323	1,140,171	941,952	228,300
June	6 mos.	6,492,505	12,498,085	19,887,495	3,250,842	199,960	8,517,422	76.3	4,722,409	2,736,043	1,528,966	585,477
Pennsylvania-Reading Seashore Lines	392	459,518	637,946	1,131,952	197,537	19,357	443,476	69.0	350,590	240,853	115,292	16,129
June	6 mos.	2,835,144	2,076,766	5,089,777	945,313	55,403	2,506,634	84.7	780,153	204,869	—344,673	—747,879
Pere Marquette	2,009	4,149,509	292,341	4,649,449	748,704	67,777	1,415,663	67.6	1,505,321	594,146	500,536	537,021
June	6 mos.	24,176,538	1,639,600	27,005,195	3,506,890	404,666	8,792,135	66.9	8,934,427	4,009,171	3,509,560	2,506,364
Pittsburgh & Shawmut	97	103,436	.....	104,016	36,046	2,397	28,680	88.9	11,537	7,611	4,415	35,793
June	6 mos.	675,795	.....	677,883	135,633	12,102	179,006	70.9	197,496	126,025	114,946	185,331
Pittsburgh & West Virginia	136	644,194	.....	663,946	111,635	19,798	155,768	64.4	236,247	154,018	161,093	156,785
June	6 mos.	3,902,385	96	4,017,065	536,881	116,449	1,019,595	61.6	1,542,115	962,251	943,492	782,068
Pittsburgh, Shawmut & Northern	190	102,343	.....	104,906	27,096	1,004	41,969	90.1	10,376	4,168	—3,611	18,250
June	6 mos.	707,042	.....	719,604	123,115	6,217	264,143	78.9	151,533	113,738	68,046	81,046
Reading	1,418	7,311,968	882,869	8,671,471	1,119,814	76,930	2,931,830	71.5	2,472,053	1,247,258	1,184,752	1,642,272
June	6 mos.	49,809,882	4,719,409	57,347,005	5,925,385	480,008	19,124,994	66.3	19,330,377	10,980,944	9,931,193	9,031,193
Richmond, Fredericksburg & Potomac	118	1,601,263	1,218,503	3,020,012	199,000	13,193	696,092	42.4	1,740,525	453,406	291,444	78,554
June	6 mos.	9,723,750	7,290,441	18,400,416	945,640	71,201	4,312,082	40.4	10,971,731	3,136,960	2,034,084	1,681,821
Rutland	407	267,196	72,814	409,439	59,411	12,561	184,603	83.8	66,301	41,976	48,834	45,447
June	6 mos.	1,509,571	322,956	2,226,655	314,139	67,254	1,075,983	89.2	239,904	98,420	131,636	240,999
St. Louis-San Francisco	4,665	6,542,540	2,203,798	9,381,195	1,080,439	149,912	2,797,059	62.5	3,514,459	2,248,120	2,058,098	2,044,149
June	6 mos.	36,608,662	10,536,987	50,700,980	5,678,725	893,094	15,949,553	65.5	17,469,603	11,268,982	10,988,476	8,487,578
St. Louis, San Francisco & Texas	159	380,202	29,960	417,779	44,727	9,815	90,020	41.6	243,995	149,651	125,318	113,320
June	6 mos.	1,979,304	160,999	2,184,620	225,421	59,006	559,357	47.8	1,140,853	715,103	588,542	244,628

Table continued on next left-hand page

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JUNE AND SIX MONTHS OF CALENDAR YEAR 1943—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues			Operating expenses			Operating ratio	Net from railway operation	Net railway operating income				
		Freight	Passenger	Total (inc. misc.)	Maintenance of way and structures	Equipment	Traffic			Total	1943	1942		
St. Louis Southwestern Lines.....	June 1,617	\$5,097,939	\$294,427	\$5,513,127	\$407,869	\$592,148	\$100,648	\$1,262,403	\$2,480,721	45.0	\$3,032,406	\$1,227,299	\$854,057	\$902,096
.....	6 mos. 1,617	28,785,764	1,660,503	31,176,010	2,306,029	2,844,072	587,866	7,222,026	13,621,583	43.7	17,548,427	7,926,118	6,092,781	4,379,490
Seaboard Air Line	June 4,178	7,456,234	3,286,436	11,409,605	1,160,937	1,561,012	226,911	2,993,896	6,364,218	55.8	5,045,387	2,045,387	1,650,504	3,238,595
.....	6 mos. 4,181	47,598,612	19,915,427	71,711,168	6,717,788	8,725,175	1,352,133	19,174,897	38,555,425	53.8	33,155,743	23,455,743	20,168,571	13,276,824
Southern Railway	June 6,514	13,272,939	5,193,754	19,701,229	2,093,129	2,975,477	217,383	4,659,669	10,535,145	53.5	9,166,084	3,203,079	2,947,962	3,723,275
.....	6 mos. 6,514	86,362,674	27,225,669	120,669,725	12,172,229	16,855,429	1,211,025	29,622,237	63,305,903	52.5	57,363,822	18,917,050	17,348,286	17,979,626
Alabama Great Southern	June 315	1,521,315	384,877	2,005,273	140,776	275,439	24,947	501,229	1,002,901	50.0	1,002,372	297,815	172,566	89,023
.....	6 mos. 315	8,636,365	2,214,736	11,400,077	836,471	1,550,257	144,683	2,942,118	5,775,454	50.7	5,624,623	1,752,668	1,266,074	994,086
Cincinnati, New Orleans & Texas Pacific.....	June 337	2,316,702	506,616	2,972,864	255,954	540,245	37,404	696,123	1,619,064	54.5	1,353,800	552,604	515,094	362,335
.....	6 mos. 337	14,249,158	3,087,940	18,142,935	1,535,067	3,022,210	213,349	4,107,489	9,365,427	51.6	8,777,508	3,092,048	2,917,480	2,351,978
Georgia Southern & Florida.....	June 397	371,747	197,673	619,106	67,534	55,083	2,388	163,092	301,392	48.7	317,714	152,846	119,788	51,431
.....	6 mos. 397	2,123,774	1,316,631	3,730,038	410,787	317,707	14,441	1,017,042	1,855,925	49.7	1,876,113	775,417	557,343	309,380
New Orleans & Northeastern.....	June 204	990,378	229,511	1,273,332	98,338	116,848	12,463	287,828	554,756	43.6	718,576	267,433	52,777	243,574
.....	6 mos. 204	5,559,500	1,209,892	7,079,358	541,570	652,112	72,251	1,622,008	3,083,489	43.6	3,995,869	1,345,066	818,123	964,018
Southern Pacific	June 8,317	30,021,239	9,168,491	42,550,814	4,557,737	5,925,152	500,297	10,684,717	23,511,506	55.3	19,039,308	6,757,339	5,325,350	5,702,881
.....	6 mos. 8,324	161,795,452	45,412,810	225,819,887	24,269,845	34,582,223	2,963,716	61,228,574	133,745,043	59.2	92,074,844	41,339,865	33,227,960	28,963,524
Texas & New Orleans	June 4,341	8,704,199	2,265,285	11,602,847	1,087,291	1,149,861	129,643	2,544,222	5,224,859	45.0	6,377,988	3,441,569	2,846,422	1,539,794
.....	6 mos. 4,341	50,256,212	12,154,904	65,845,561	6,432,607	6,589,737	832,536	14,922,897	30,717,337	46.7	35,128,224	18,410,877	15,030,565	8,539,271
Spokane, Portland & Seattle	June 929	1,710,752	199,715	2,035,146	290,306	123,252	10,993	587,578	1,072,984	52.7	962,162	555,935	330,576	572,404
.....	6 mos. 929	9,788,738	906,342	11,461,153	1,267,551	720,207	73,000	3,311,785	5,711,607	49.8	5,749,546	4,506,643	3,371,917	2,512,685
Tennessee Central	June 286	422,848	94,227	537,045	67,383	52,019	7,535	121,556	266,460	49.6	270,585	165,192	141,505	51,592
.....	6 mos. 286	1,958,021	287,851	2,366,569	450,534	306,311	40,263	681,570	1,574,210	66.5	792,559	506,829	427,527	237,461
Texas & Pacific	June 1,884	3,698,501	1,675,100	5,889,854	748,091	891,301	104,013	1,402,645	3,385,946	57.5	2,503,908	879,795	798,423	1,041,889
.....	6 mos. 1,895	20,880,952	9,795,999	33,565,485	4,224,652	5,079,824	596,576	7,969,909	19,303,342	57.5	14,262,143	4,943,305	4,553,227	4,364,501
Texas Mexican	June 162	161,374	803	183,773	27,316	17,490	3,248	40,824	97,903	53.3	85,870	65,301	55,761	39,147
.....	6 mos. 162	905,975	5,173	1,041,040	150,960	81,613	22,501	239,313	550,045	53.8	490,995	350,851	295,185	281,249
Toledo, Peoria & Western	June 239	425,069	29	429,148	46,510	18,450	23,200	76,457	183,060	42.7	246,088	229,932	212,455	87,309
.....	6 mos. 239	2,379,399	431	2,401,683	238,952	107,764	136,641	444,551	1,003,567	41.8	1,398,116	1,314,372	1,213,305	168,820
Union Pacific System	June 9,812	29,263,360	8,153,142	40,309,783	5,585,447	6,564,220	431,969	9,700,139	23,978,110	59.5	16,331,673	2,938,913	1,917,103	3,777,807
.....	6 mos. 9,831	165,702,647	39,219,403	220,977,165	30,037,519	37,342,280	2,822,907	55,822,386	135,148,967	61.2	85,828,198	29,701,987	24,051,594	14,397,714
Utah	June 111	60,845	.....	60,850	16,484	43,322	380	24,085	88,983	146.2	28,133	19,896	20,835	27,519
.....	6 mos. 111	687,636	.....	687,756	98,482	246,076	2,612	185,149	558,259	81.2	129,497	61,138	55,408	66,030
Virginian	June 657	1,578,718	9,842	1,658,792	236,088	433,259	23,195	341,574	1,085,579	65.4	573,213	323,213	457,453	615,102
.....	6 mos. 658	12,400,712	47,419	12,928,362	1,283,580	2,724,073	145,935	2,394,876	6,852,295	53.0	6,076,067	2,806,067	3,529,681	3,813,265
Wabash	June 2,393	6,587,296	897,321	7,912,612	930,038	917,934	181,850	2,127,748	4,625,672	58.5	3,286,940	1,374,559	962,315	735,028
.....	6 mos. 2,393	39,223,576	4,739,823	46,426,180	4,711,308	5,404,949	1,062,474	14,011,897	26,602,875	57.3	19,823,305	8,444,602	5,865,763	4,324,085
Ann Arbor	June 294	442,560	10,581	467,032	53,555	81,764	16,850	186,404	350,846	75.1	116,186	65,296	57,666	29,330
.....	6 mos. 294	2,819,871	43,371	2,925,324	270,452	493,453	97,959	1,143,721	2,074,007	70.9	851,317	478,748	442,954	211,439
Western Maryland	June 840	2,447,131	35,594	2,577,682	371,051	559,122	42,588	644,552	1,688,659	65.5	889,023	514,023	518,559	560,943
.....	6 mos. 844	16,813,938	154,584	17,485,436	2,119,214	3,420,755	259,891	4,415,141	10,652,079	60.9	6,833,357	4,023,357	4,064,101	3,120,219
Western Pacific	June 1,195	3,452,873	606,705	4,218,062	350,381	445,550	74,657	1,087,955	2,081,252	49.3	2,136,810	1,295,747	1,171,360	850,601
.....	6 mos. 1,195	18,258,432	2,202,393	21,292,676	2,006,757	2,601,346	449,596	6,169,001	11,900,457	55.9	9,392,219	5,887,824	4,964,420	3,869,535
Wheeling & Lake Erie.....	June 507	1,965,640	.....	2,067,797	1,379,896	385,680	41,579	649,558	1,384,517	67.0	683,280	165,636	295,926	264,926
.....	6 mos. 507	12,874,605	.....	13,303,899	1,379,124	2,227,820	241,135	3,609,616	7,746,926	58.2	5,556,973	972,373	1,823,202	1,342,488